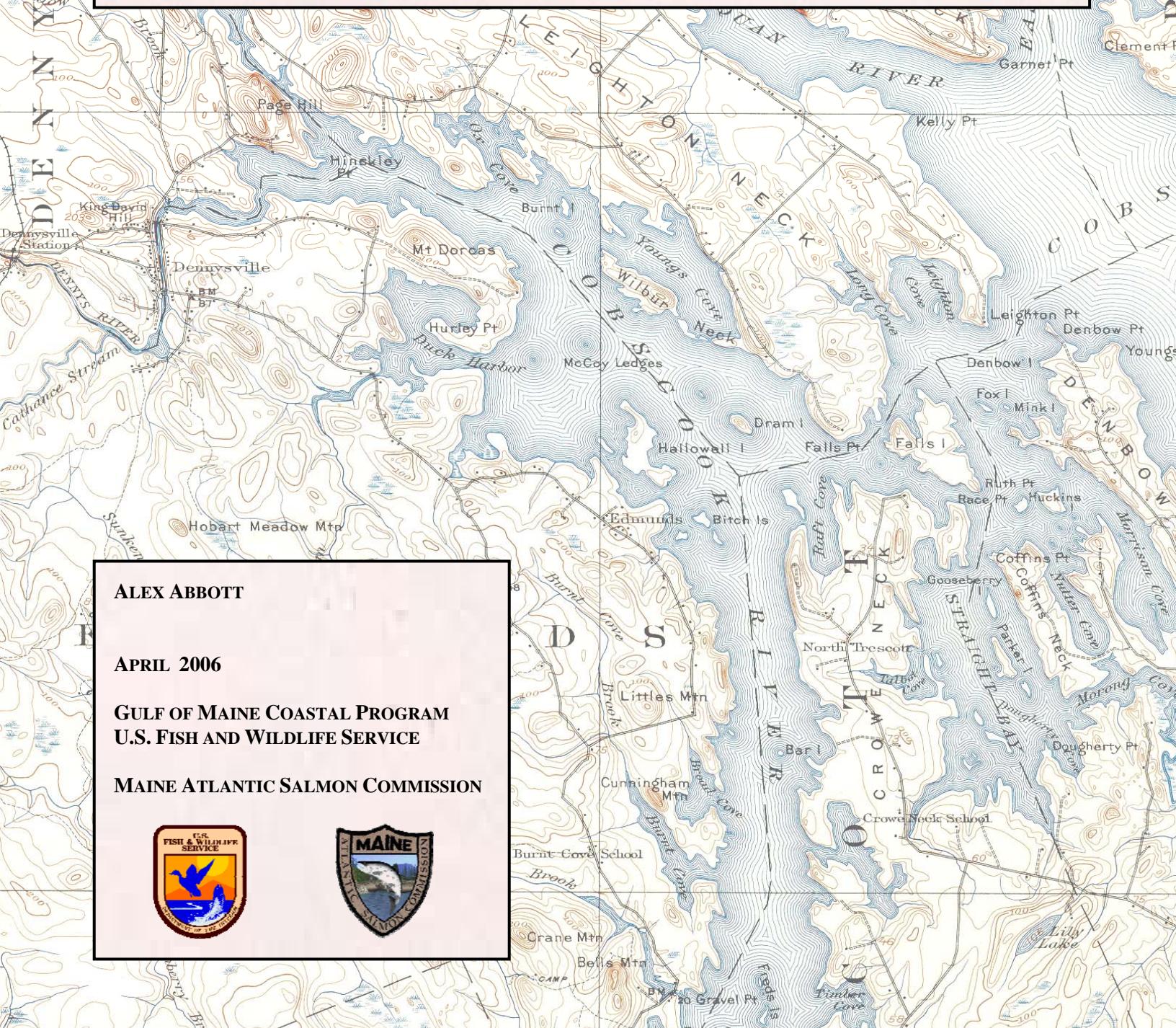
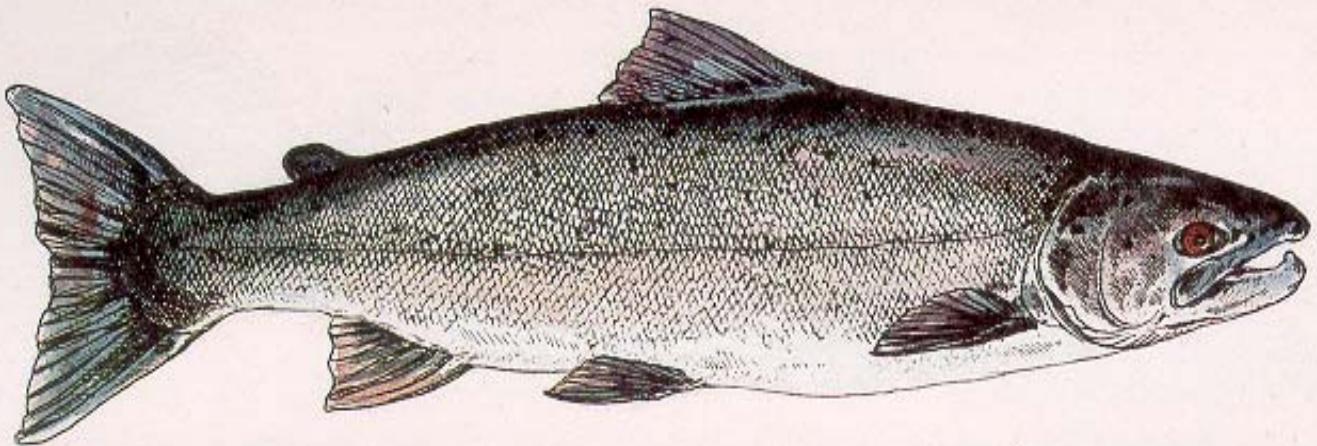


MAINE ATLANTIC SALMON HABITAT ATLAS



ALEX ABBOTT

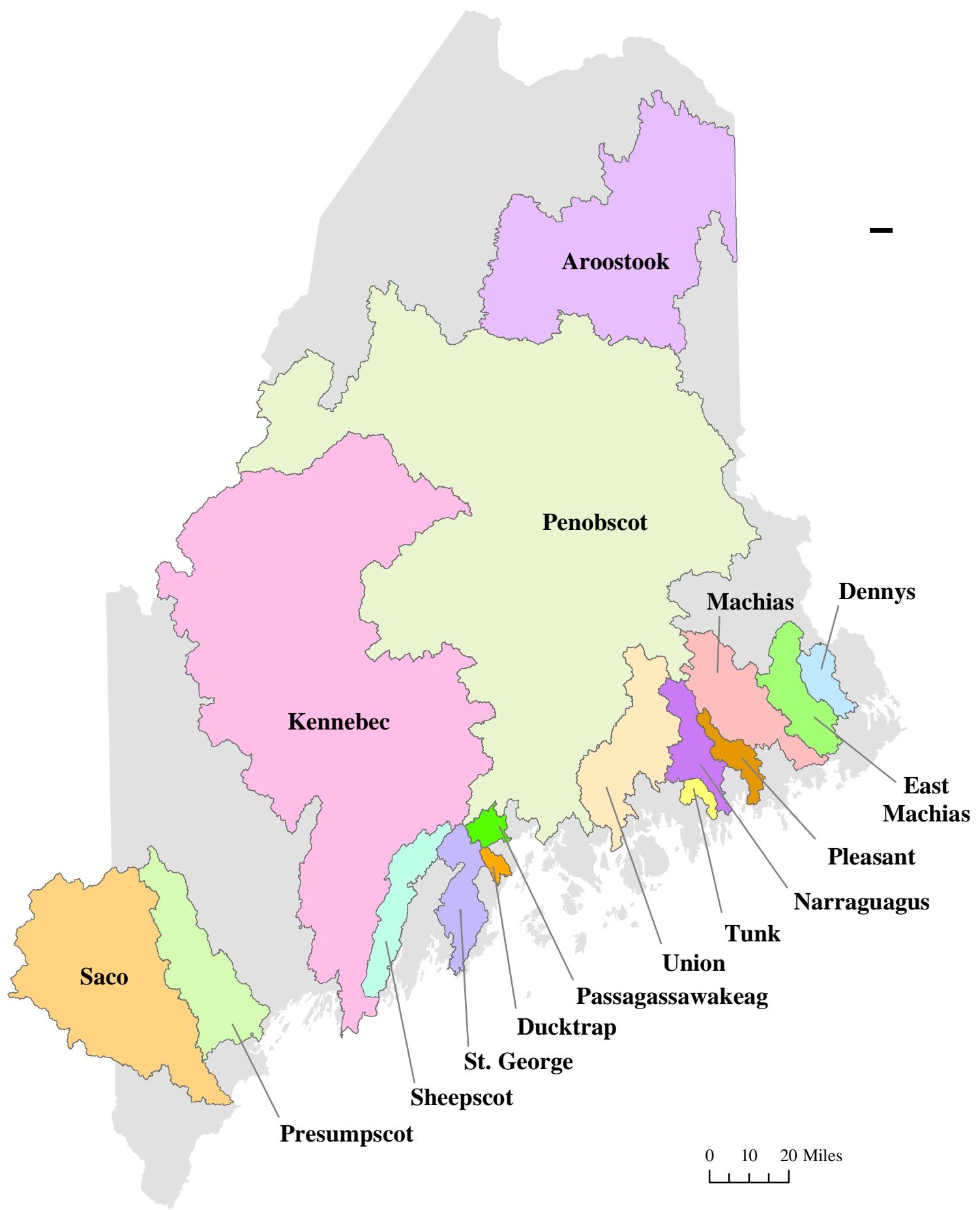
APRIL 2006

GULF OF MAINE COASTAL PROGRAM
U.S. FISH AND WILDLIFE SERVICE

MAINE ATLANTIC SALMON COMMISSION



Maine Watersheds with Atlantic Salmon Habitat Surveys



MAINE ATLANTIC SALMON HABITAT ATLAS

April 2006

Introduction

This third edition of the *Maine Atlantic Salmon Habitat Atlas* has been published in digital form to provide detailed maps of surveyed Atlantic salmon habitat in Maine. The habitat data which forms the core of the atlas was developed from field surveys conducted between 1994 and 2005 in the Aroostook, Dennys, Ducktrap, East Machias, Kennebec, Machias, Narraguagus, Passagassawakeag, Penobscot, Pleasant, Presumpscot, St. George, Sheepscot, Tunk and Union River watersheds by staff of the Maine Atlantic Salmon Commission and the U.S. Fish and Wildlife Service. These surveys were conducted to identify important Atlantic salmon spawning and rearing areas. The habitat data resulting from the surveys is meant to assist with a variety of research, management and planning activities including fry stocking, developing production estimates, habitat protection activities and data collection. While the atlas depicts spawning and rearing habitat and important point features, the digital data used to create these maps also includes information on habitat categories, composition, length, width and depth measurements, as well as canopy and other vegetation variables.

Each river surveyed appears alphabetically within the atlas, and has an index map showing the arrangement of individual map pages. Map pages are numbered from upstream to downstream, starting on the mainstem, and then proceeding alphabetically by tributary. Map pages are presented at a scale of 1:15,000 using modified USGS topographic map data as a basemap. Habitat units are represented as line segments depicting the length, but not width, of each habitat unit. All map pages contain symbols and labels indicating surveyed and unsurveyed subreaches into which each stream is divided by the Maine Atlantic Salmon Commission, and most also show points of interest with explanatory labels.

Data Sources

The data used to create this atlas came from a variety of sources. Habitat and associated data was developed by the Gulf of Maine Coastal Program of the U.S. Fish and Wildlife Service and the Maine Atlantic Salmon Commission. Many resources were supplied by the Gulf of Maine Coastal Program, including software, hardware, and data. Basemap data, including USGS digital topographic map data, and most watershed boundaries, were supplied by the Maine Office of Geographic Information Systems (MEGIS) and modified by the Gulf of Maine Coastal Program.

The digital habitat dataset (ASHAB3) used in the creation of this atlas is available for download from the MEGIS Data Catalog (internet address: <http://apollo.ogis.state.me.us/catalog/>). A detailed metadata document is also available there describing how the data was derived and how it is structured, including information about data attributes.

Explanatory Notes

Several features of the maps in this atlas require further description than is supplied in the legend.

Limited Spawning Habitat refers to those flatwater habitat units (deadwaters, glides and pools) in which spawning area is less than 30% of the unit area. Units containing more than 30% spawning areas are classified as **Spawning Habitat**. Note that most flatwater units contain no spawning habitat.

Subreaches identified in the atlas were defined by the biologists who completed each of the habitat surveys, and are used as fundamental units of organization. The **subreach codes** with which these reaches are labeled begin with a unique identifier for that stream (e.g., 1MAINST), and are followed by the distance in kilometers from the bottom to the top of the subreach as measured up from the mouth of the stream. The **buffer** polygons highlighting the subreaches are meant only as a cartographic tool for identifying them, and do not represent any particular biological or legal boundaries. Note that not all streams have assigned subreaches, but that all subreaches without habitat surveys are symbolized distinctly with a brown dashed buffer outline. In areas where only a part of a subreach has been surveyed, each part of that subreach is symbolized to indicate the approximate extent of the survey.

USGS topographic map images represent data that was originally mapped at a scale of 1:24,000. These images vary in source date from 1948 to 1995. **Contour lines** on the images exist with three different contour intervals depending upon standards in use at the time of the original survey of each quadrangle. The **map grid** measures surrounding each map page allow location of data as projected in NAD83 UTM (Universal Transverse Mercator) Zone 19 North Meters, which leads to a shift from the grid lines often evident on the USGS map images (originally projected in NAD27). When using the measures to find a location, use a straightedge aligned with the appropriate tics along the map borders.

Some long sections of streams between habitat areas have not been mapped. These are generally deadwater stretches that have no spawning or rearing habitat, nor any labeled points of interest.

Acknowledgements

Without the dedication and talent of past and present staff this information and atlas would not exist: Marty Anderson, Ernie Atkinson, Ed Baum, Ken Beland, Denise Buckley, Paul Christman, Tracy Copeland, Jason Czapiga, Norm Dube, Kevin Dunham, Melissa Evers, Gregg Horton, Dan Kircheis, Fred Kircheis, Greg Mackey, Jim MacMichael, John Magee, Jerry Marancik, Maggie Martin, Dan McCaw, Henry Nichols, Mariska Obedzinski, Dave Ouellette, Kipp Powell, Peter Ruksznis, Wayne Simmons, Mitch Simpson, Randy Spencer, Justin Stevens and Joan Trial. Thanks for title page map images go to the University of New Hampshire Library's Historic USGS Maps of New England & NY (internet address: <http://docs.unh.edu/nhtopos/nhtopos.htm>) Special thanks are due to Jed Wright for his initiation and support of this project, and the many creative ideas he has contributed.

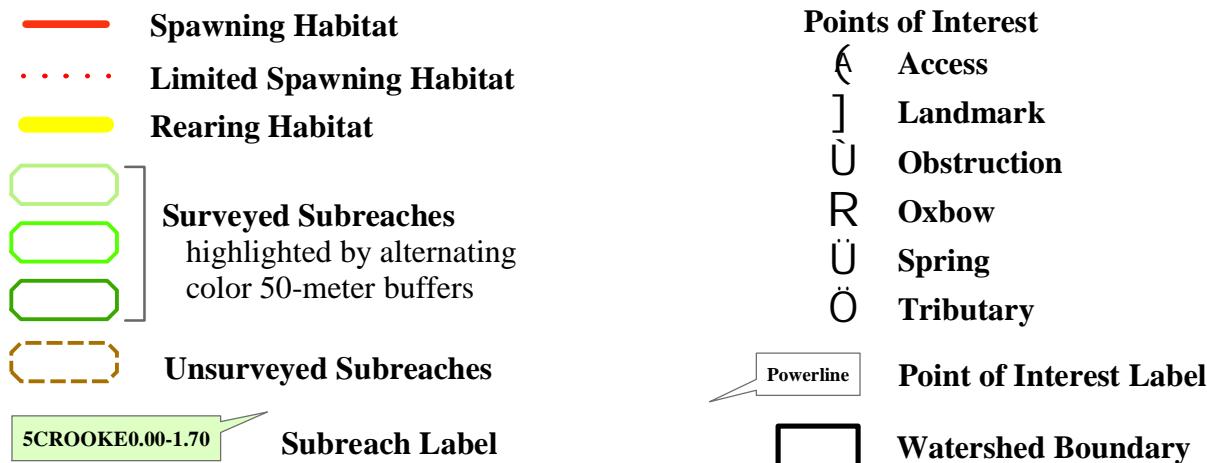
For more information, please contact:

Alex Abbott c/o
Gulf of Maine Coastal Program
U.S. Fish and Wildlife Service
4R Fundy Rd.
Falmouth, ME 04105
207-781-8364

OR

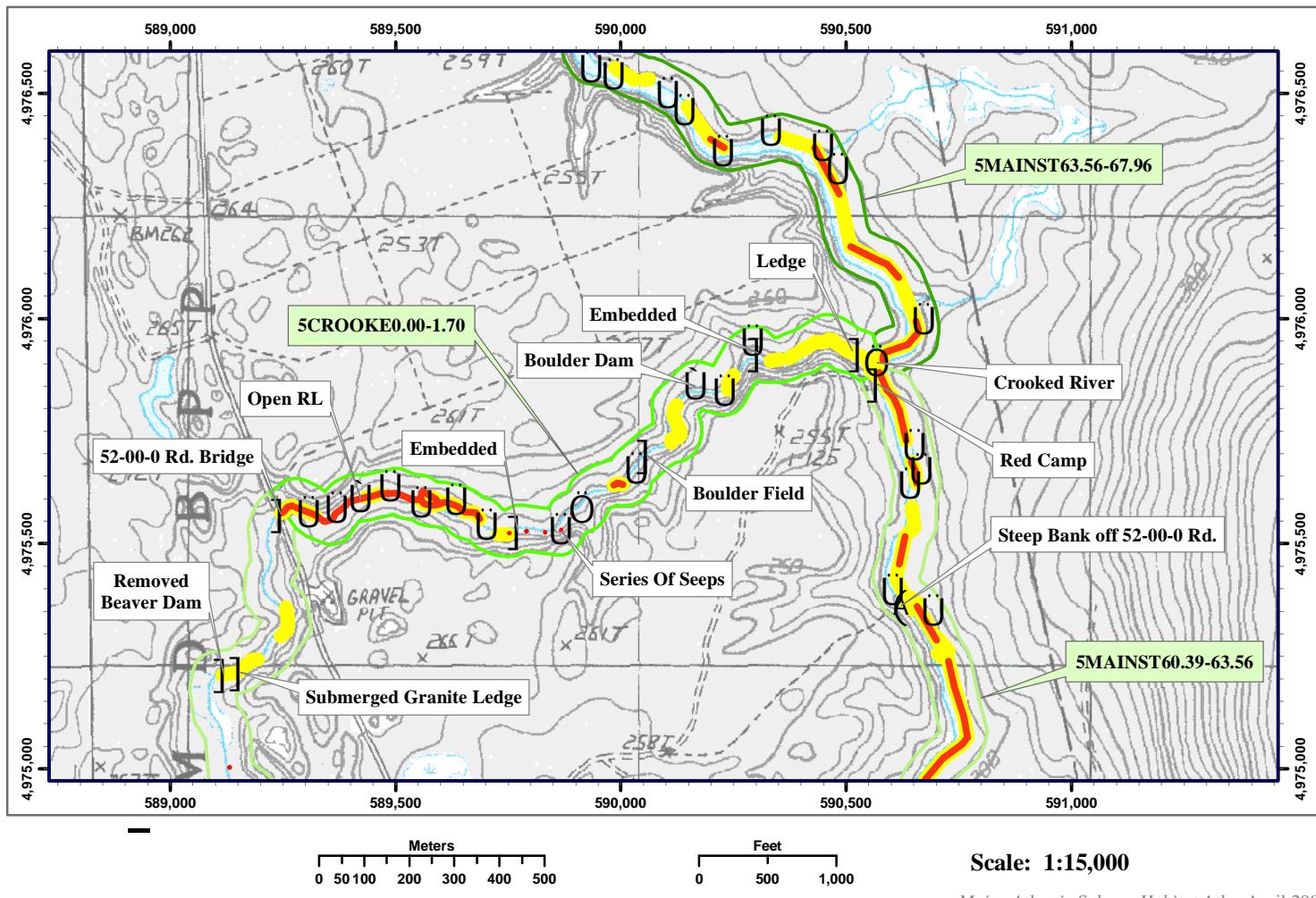
Maine Atlantic Salmon Commission
650 State Street
Bangor, ME 04401
207-941-4449

LEGEND

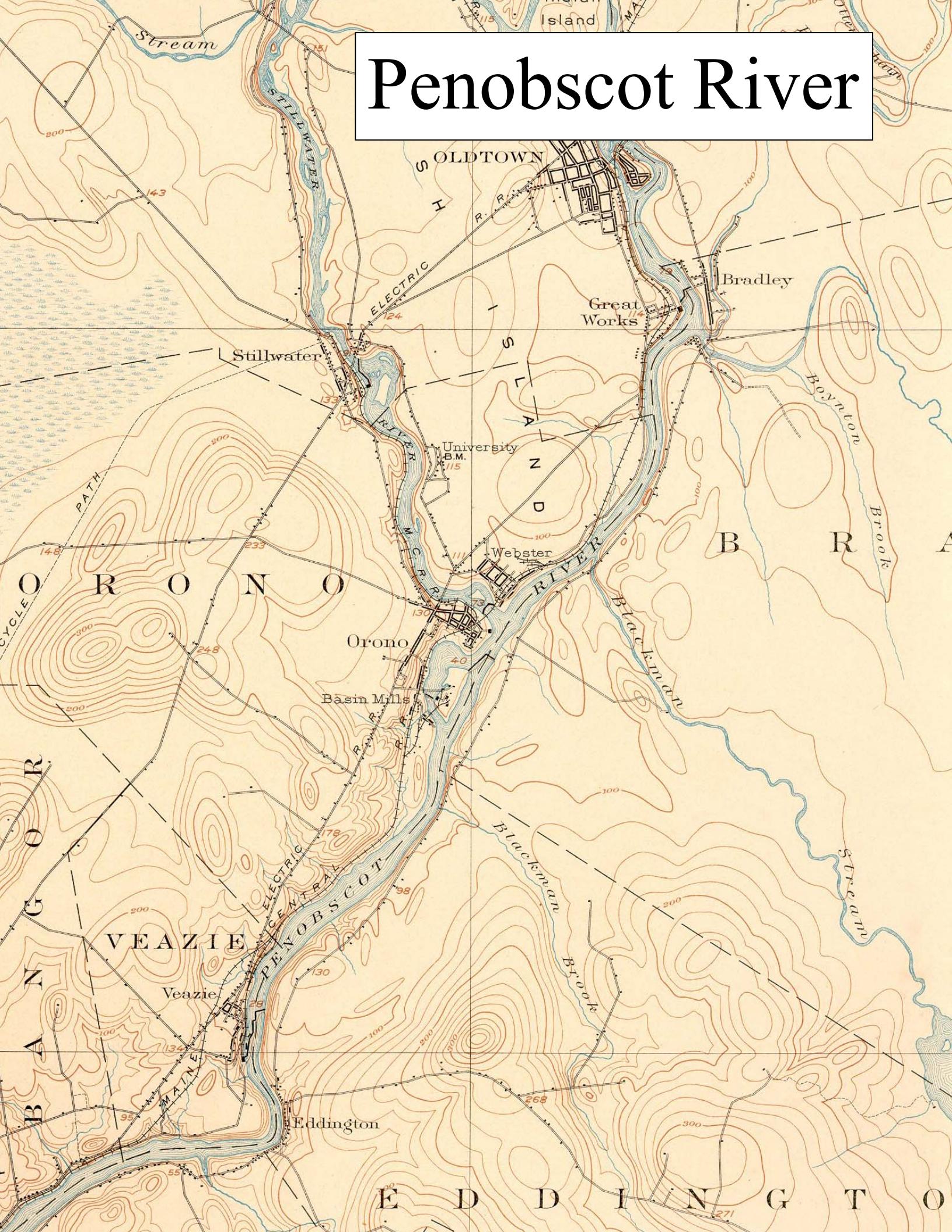


- > **USGS Topographic Map Images** provide basemap data, and have been modified in color to minimize their visual impact. Water features remain blue, but have been lightened, while forest cover, contour lines, and all other features symbolized normally with black lines, such as roads, structures, and labels have been changed to grey.
- >> Contour Interval = 10 Feet, 20 Feet, or 3 Meters, depending on quadrangle mapped.
- > The grid measures surrounding the maps are in UTM Meters with labels every 500 m, and tics located every 50 m.
- > RR and RL found often in Points of Interest labels refer to River Right and River Left (when facing downstream).
- > For further description of Subbreaches, USGS Topographic Map Images and other map features, please refer to the *Explanatory Notes* section of the atlas.

Sample Map Section



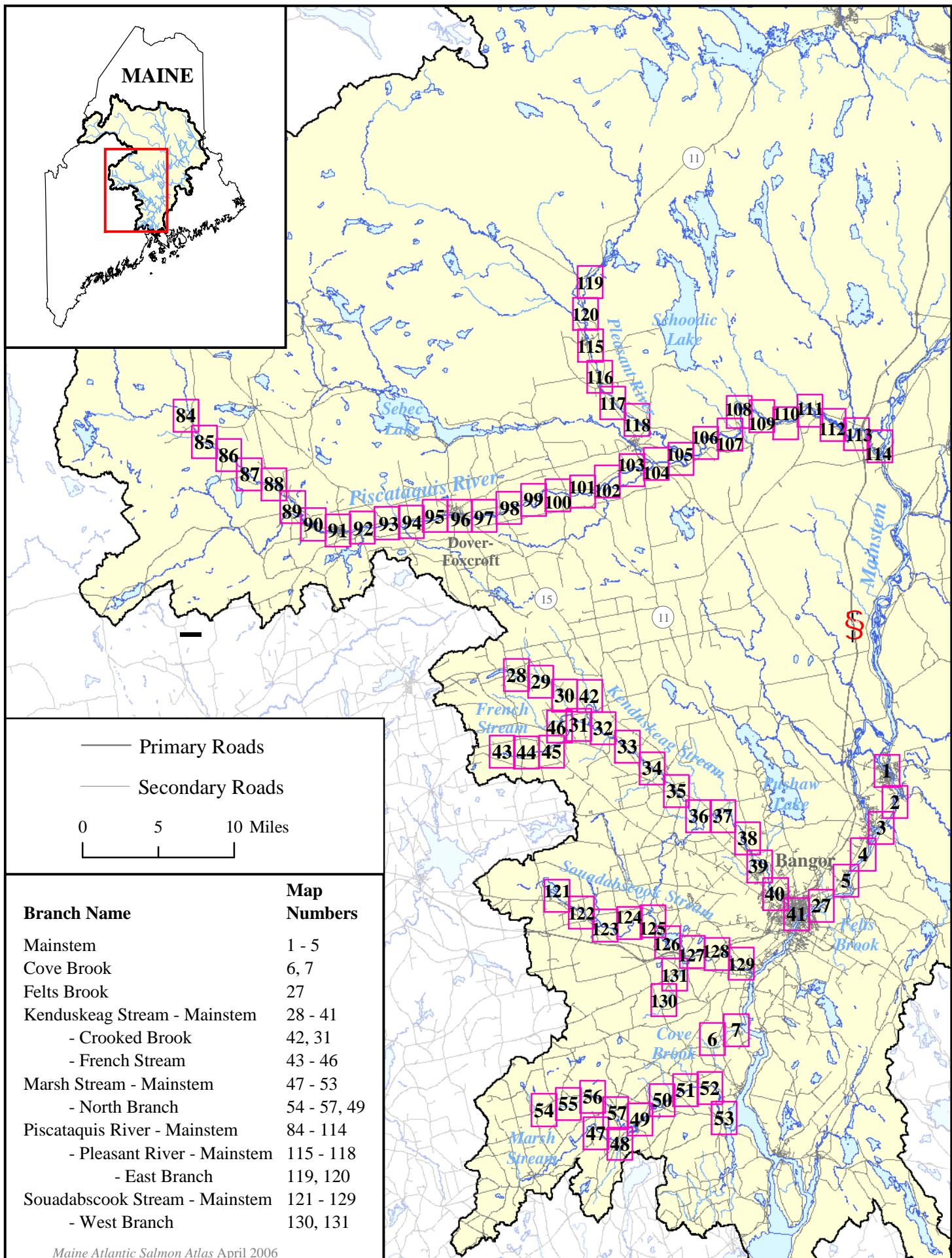
Penobscot River



Penobscot River

Southwest

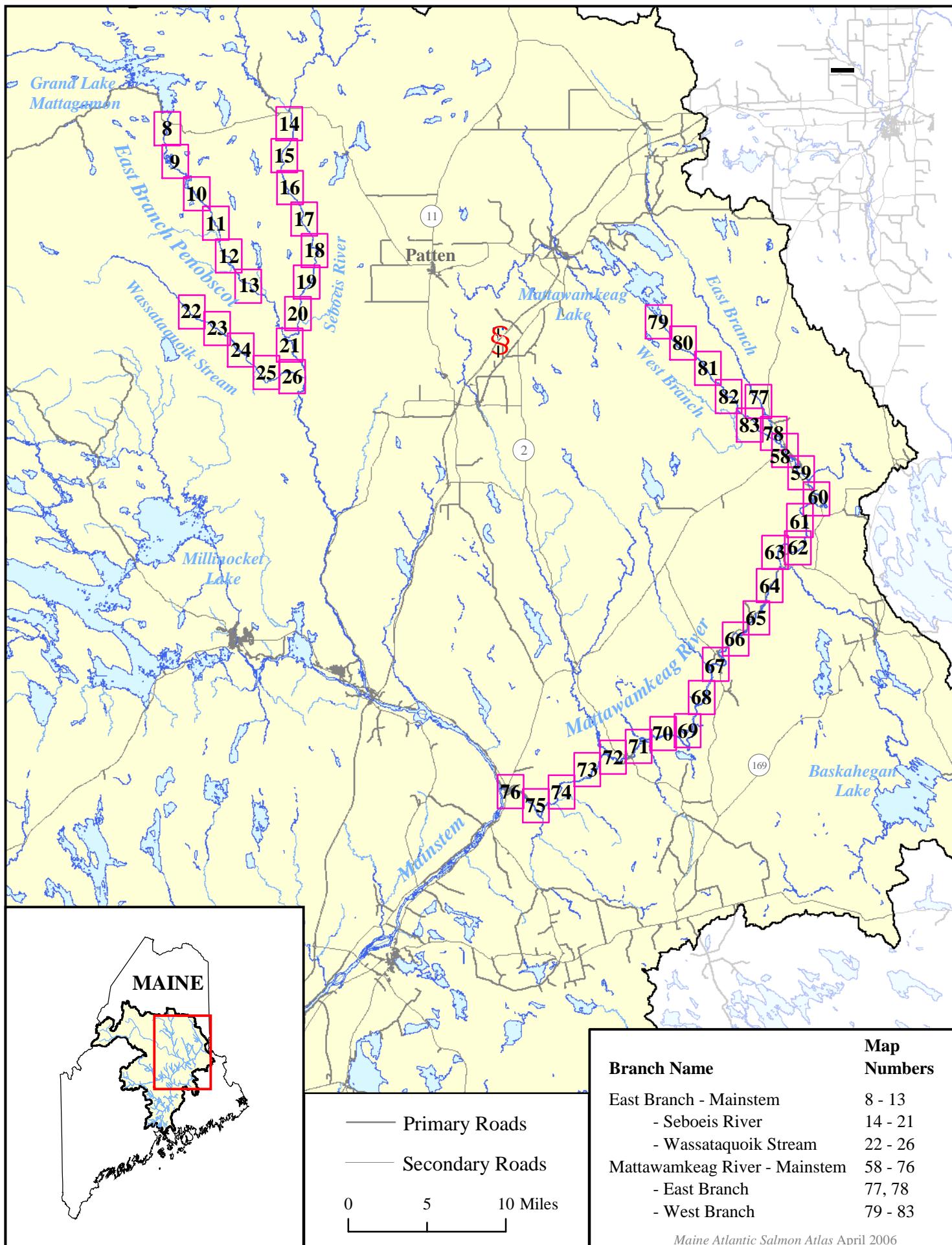
Index Map



Penobscot River

Northeast

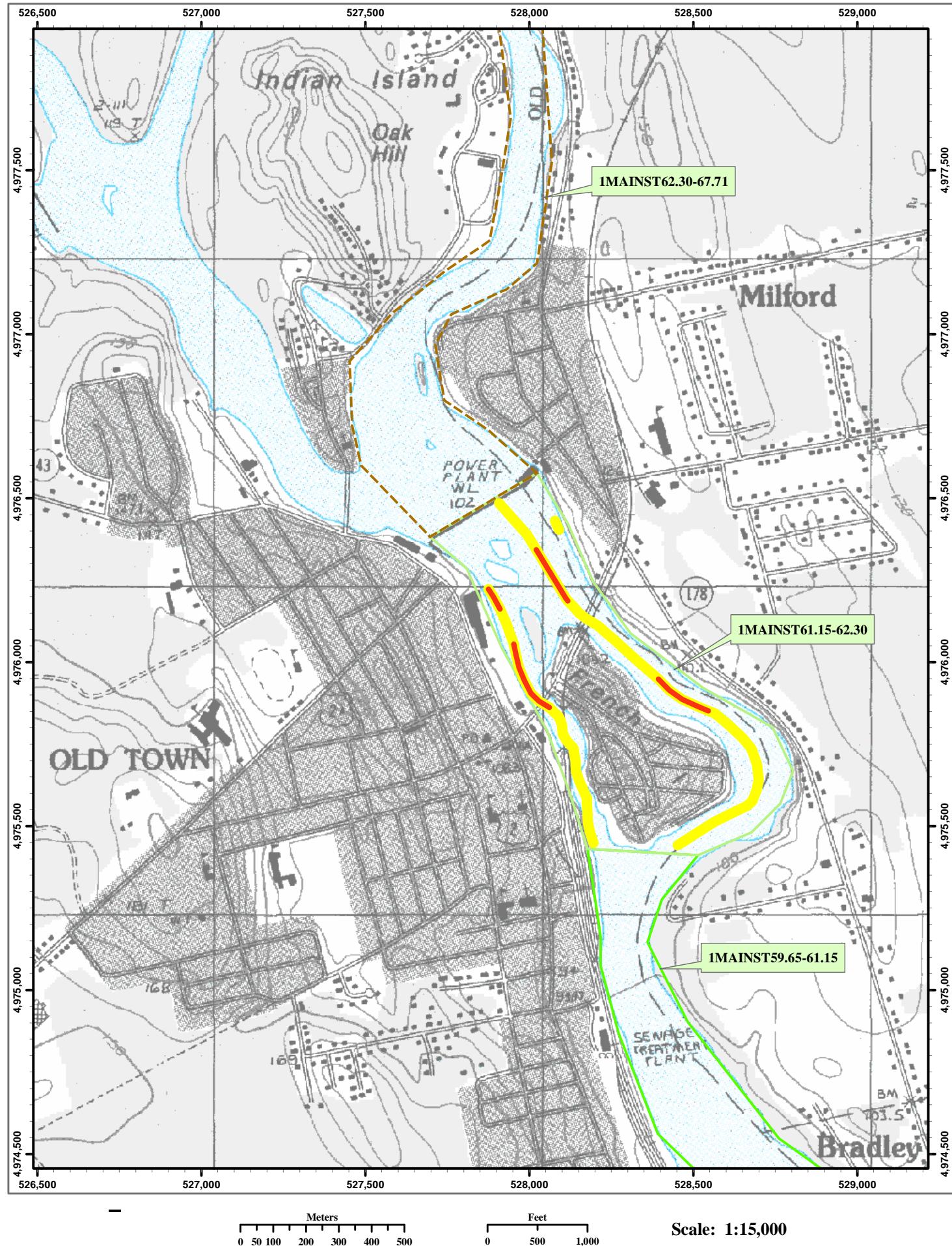
Index Map



Penobscot River

Mainstem

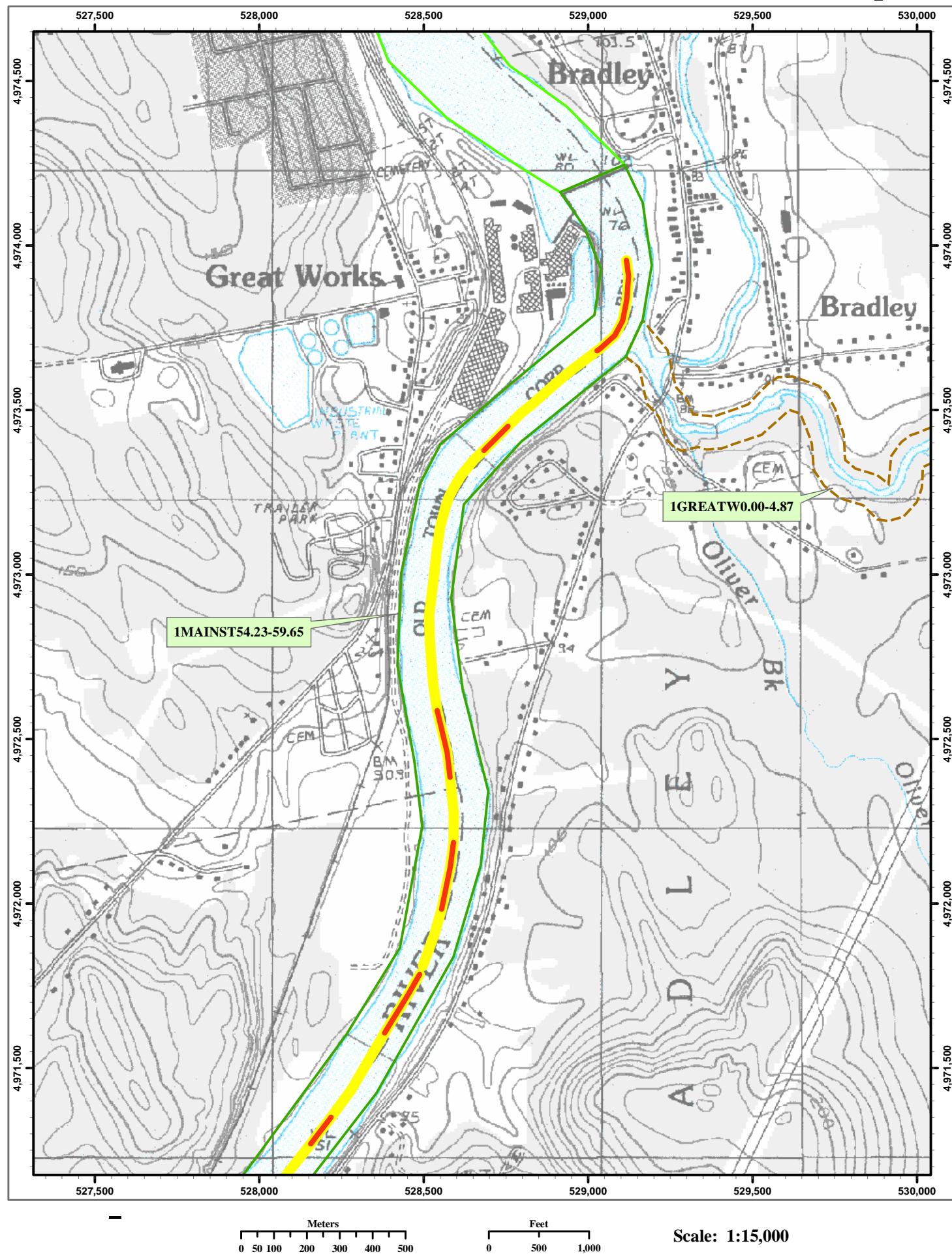
Map 1



Penobscot River

Mainstem

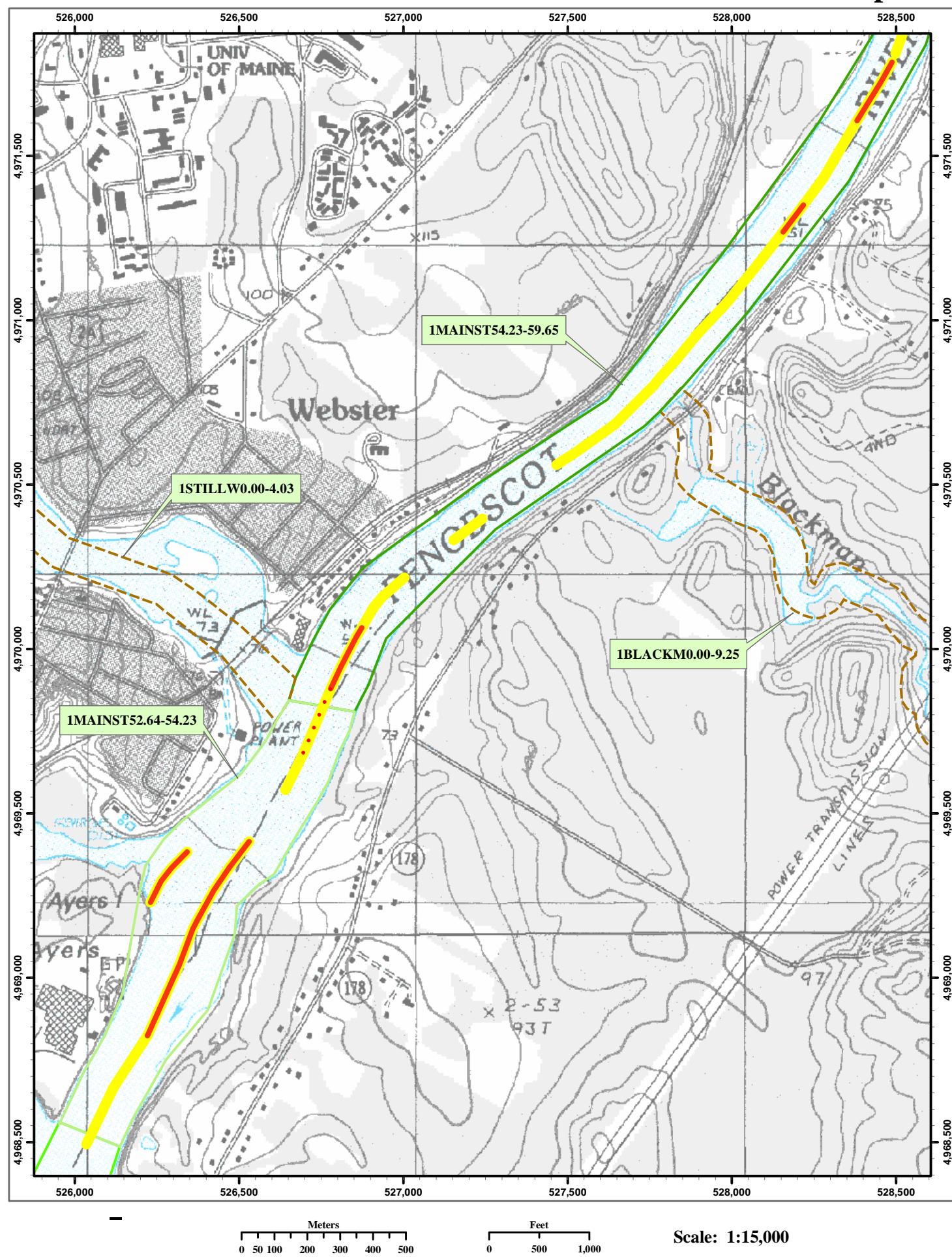
Map 2



Penobscot River

Mainstem

Map 3



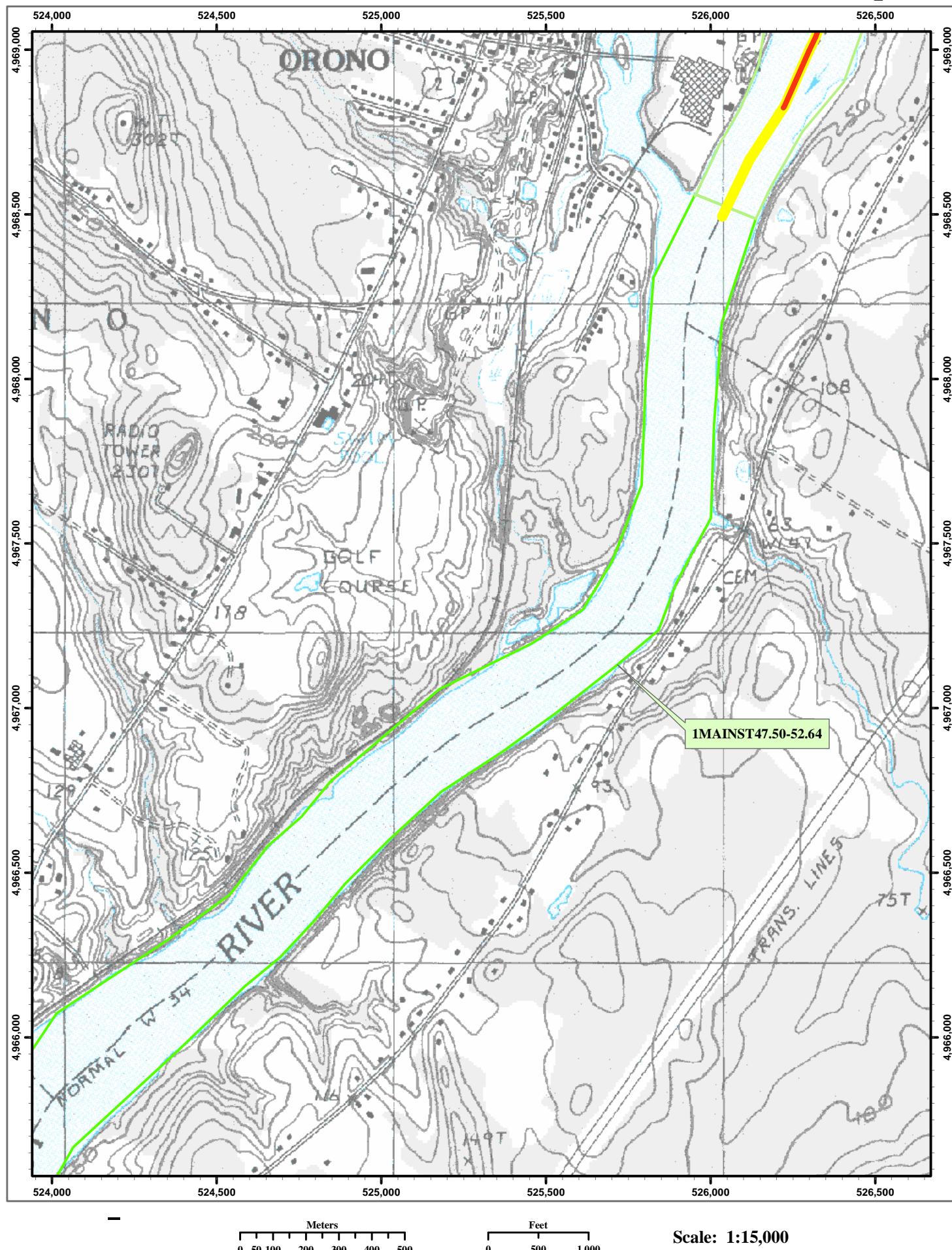
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Maine Atlantic Salmon Habitat Atlas April 2006

Penobscot River

Mainstem

Map 4

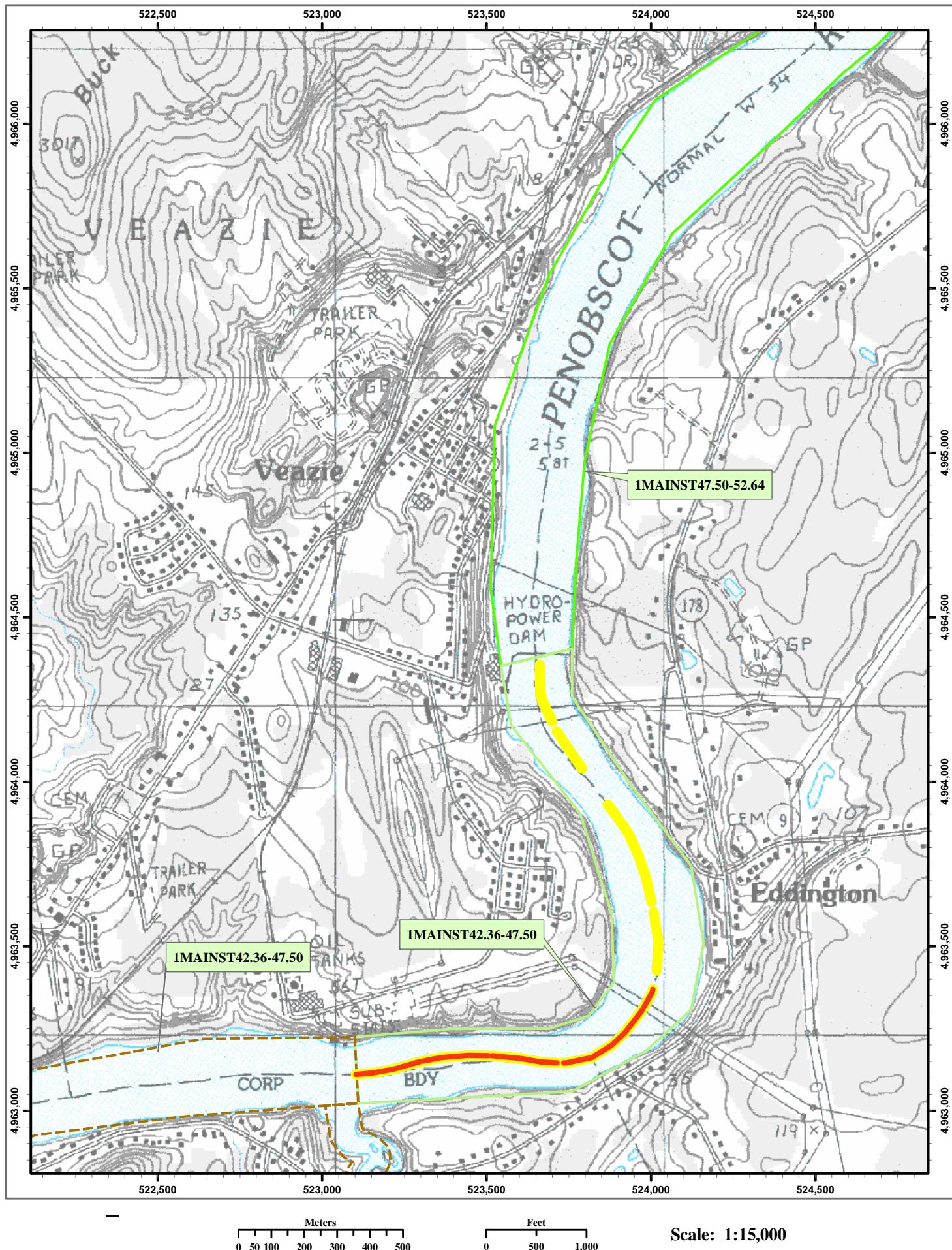


Maine Atlantic Salmon Habitat Atlas April 2006

Penobscot River

Mainstem

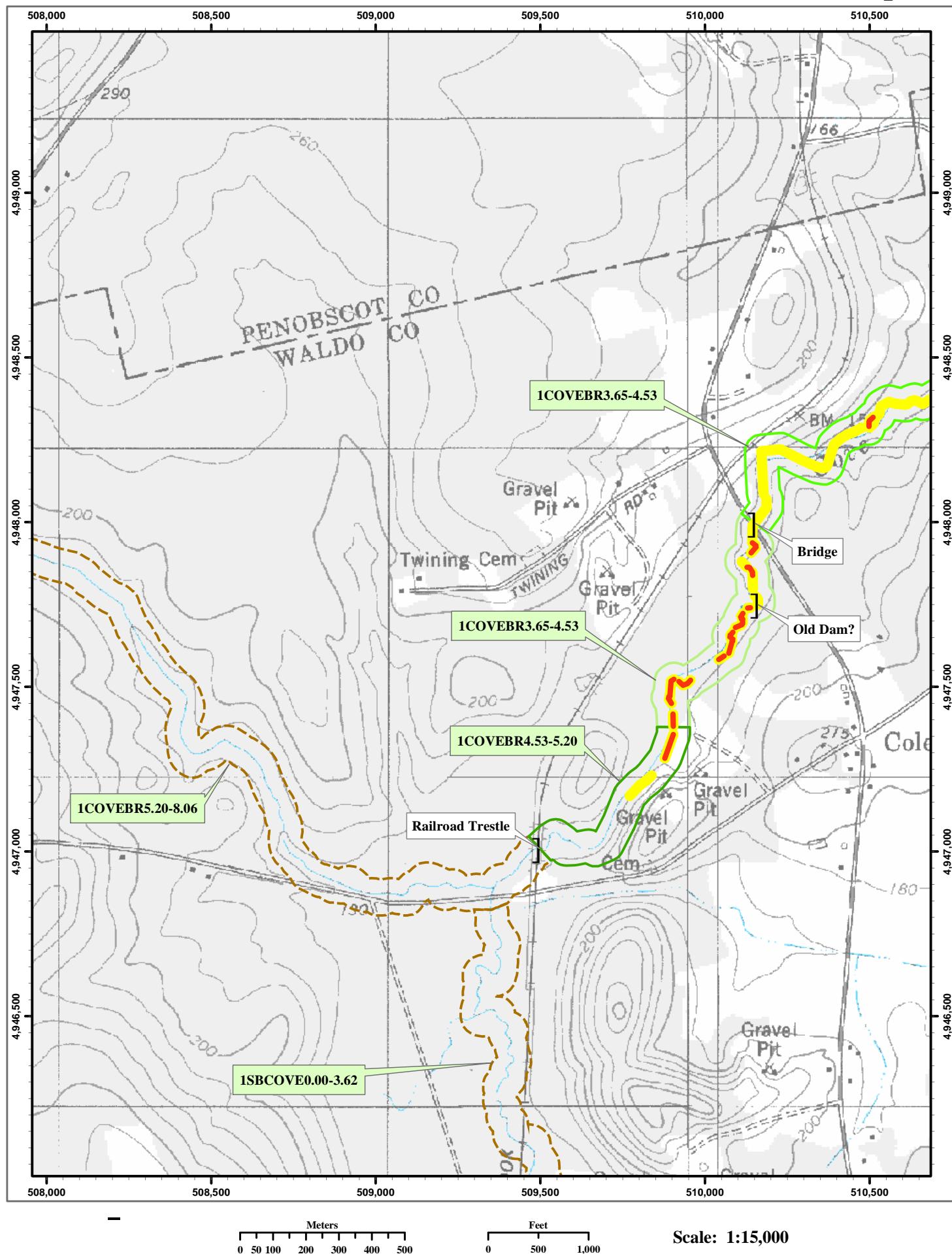
Map 5



Penobscot River

Cove Brook

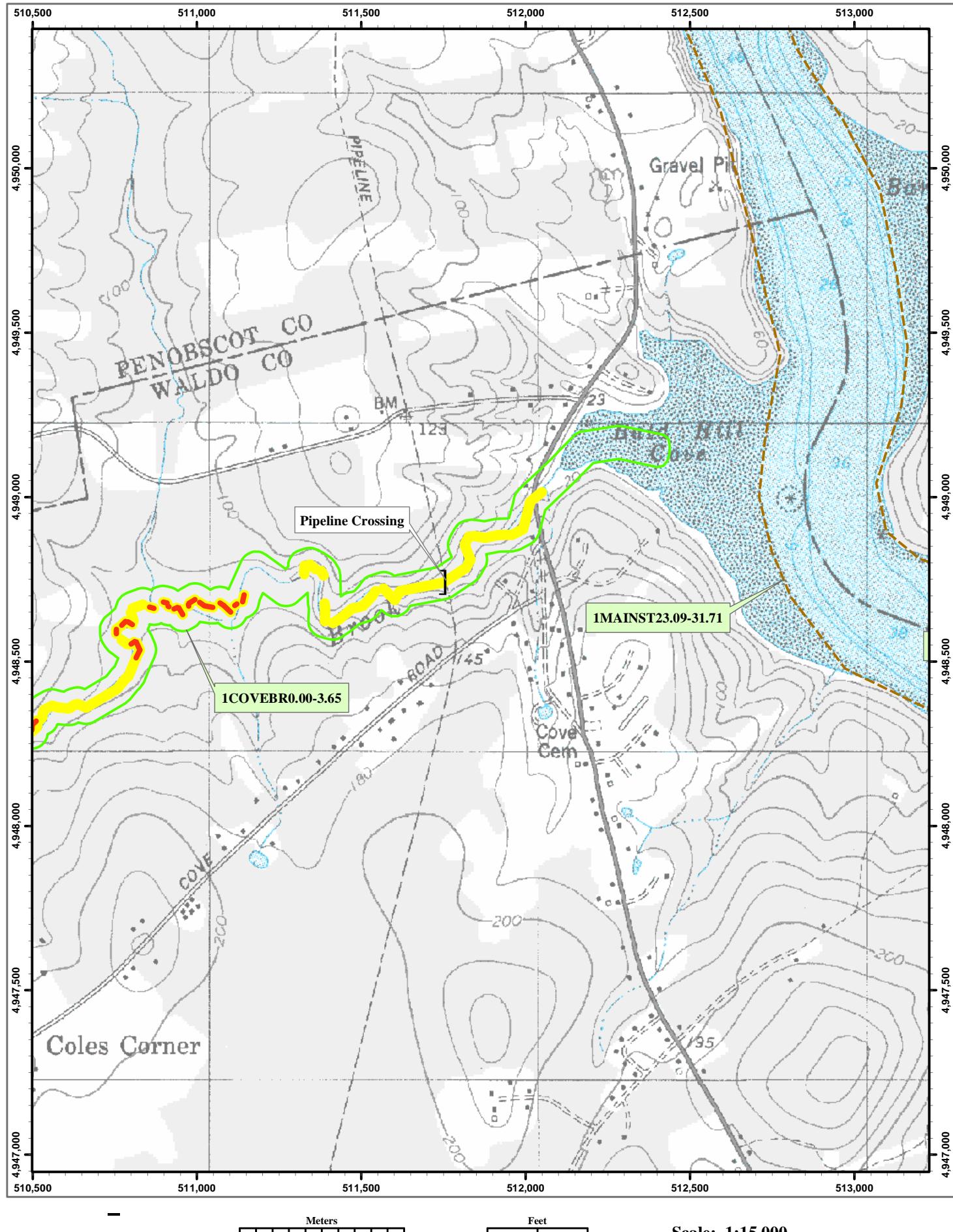
Map 6



Penobscot River

Cove Brook

Map 7



Meters

Feet

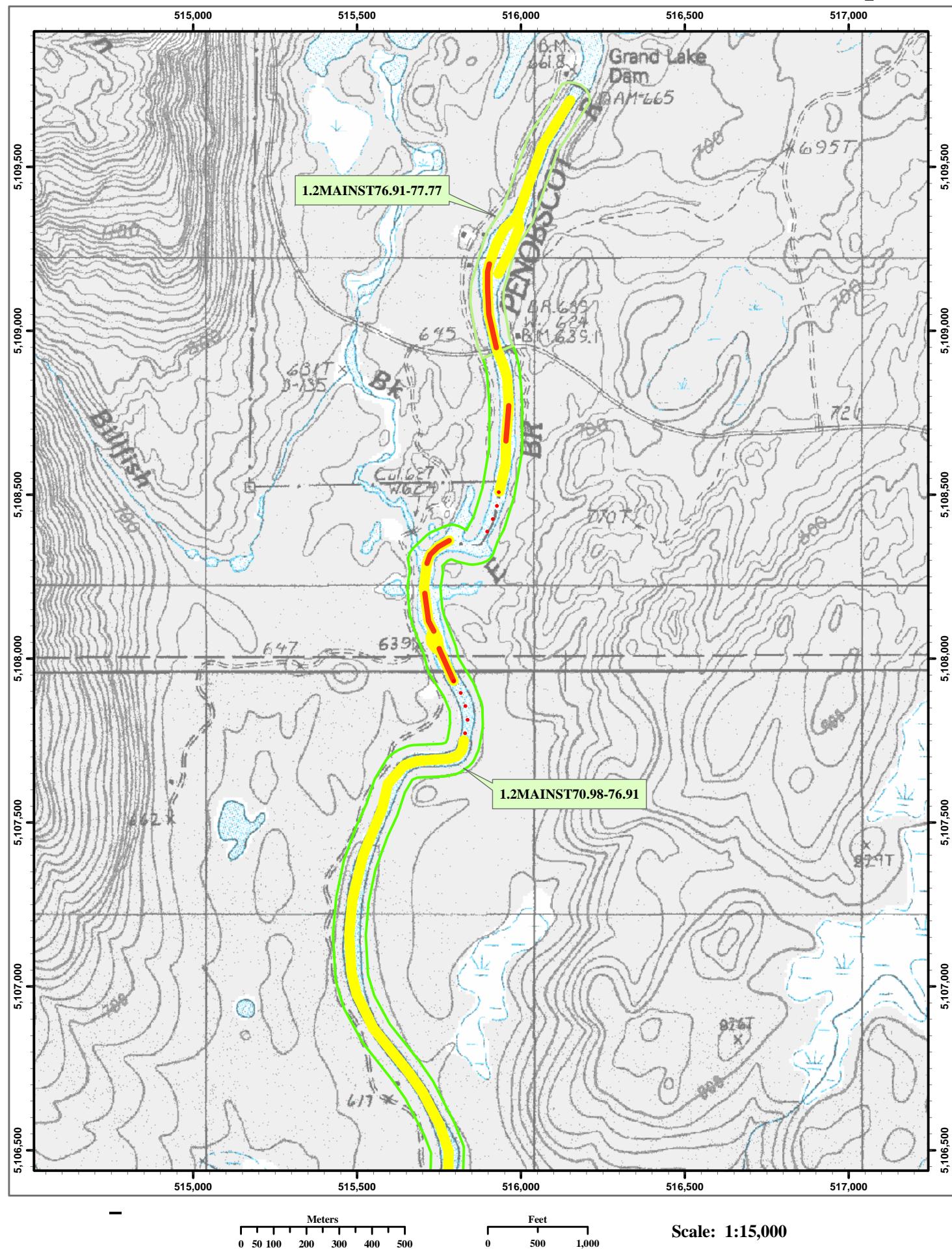
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Scale: 1:15,000

Penobscot River

East Branch

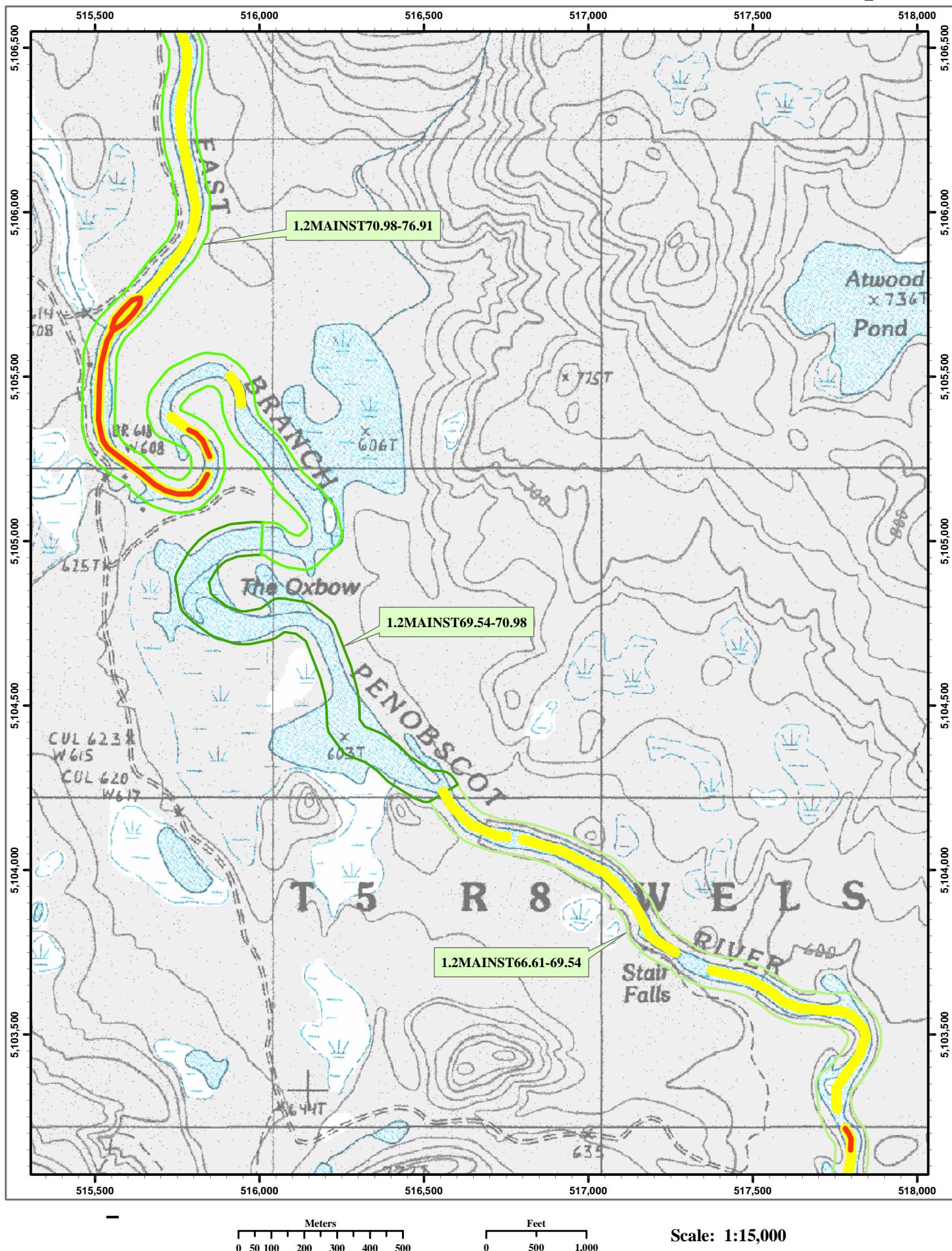
Map 8



Penobscot River

East Branch

Map 9



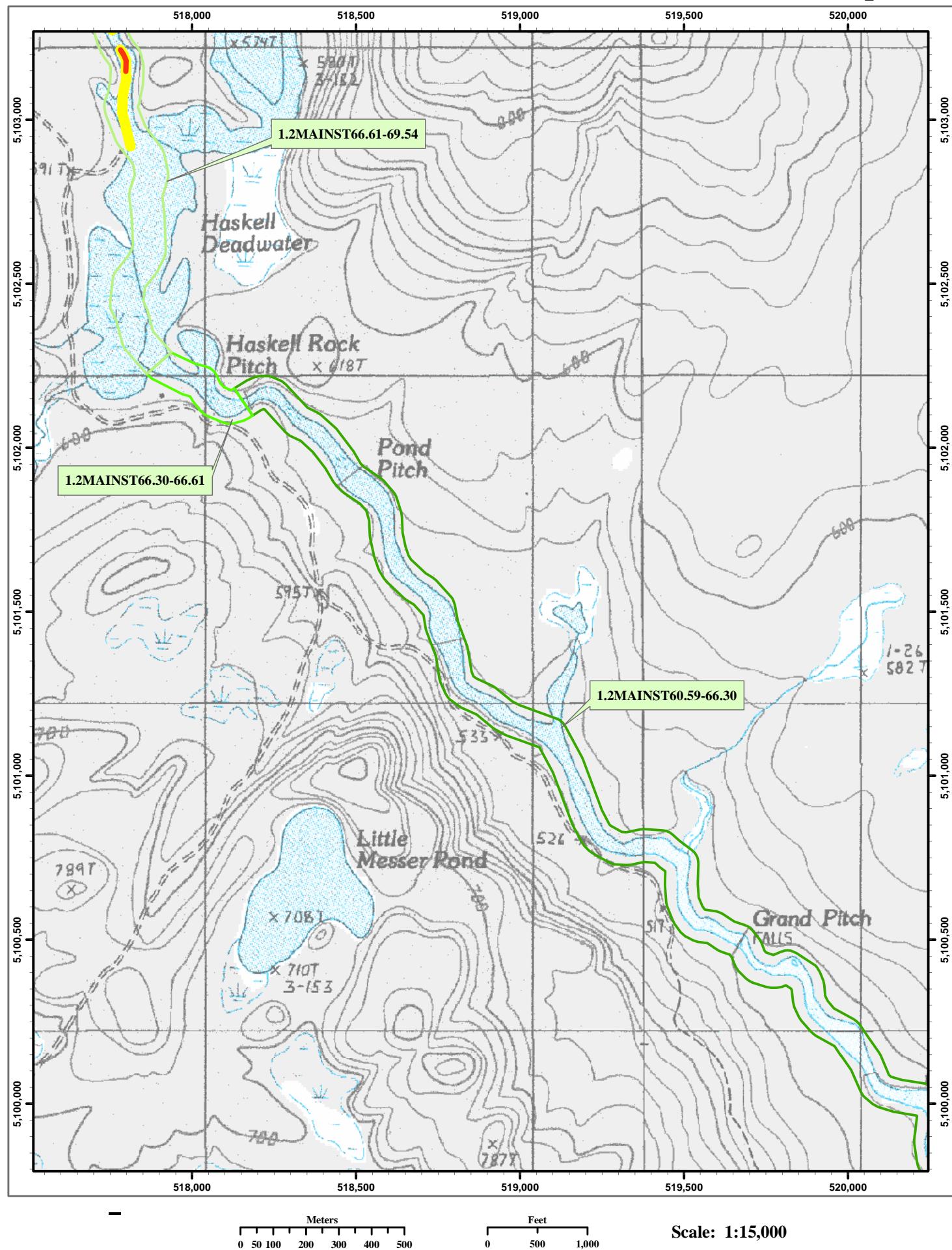
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Maine Atlantic Salmon Habitat Atlas April 2006

Penobscot River

East Branch

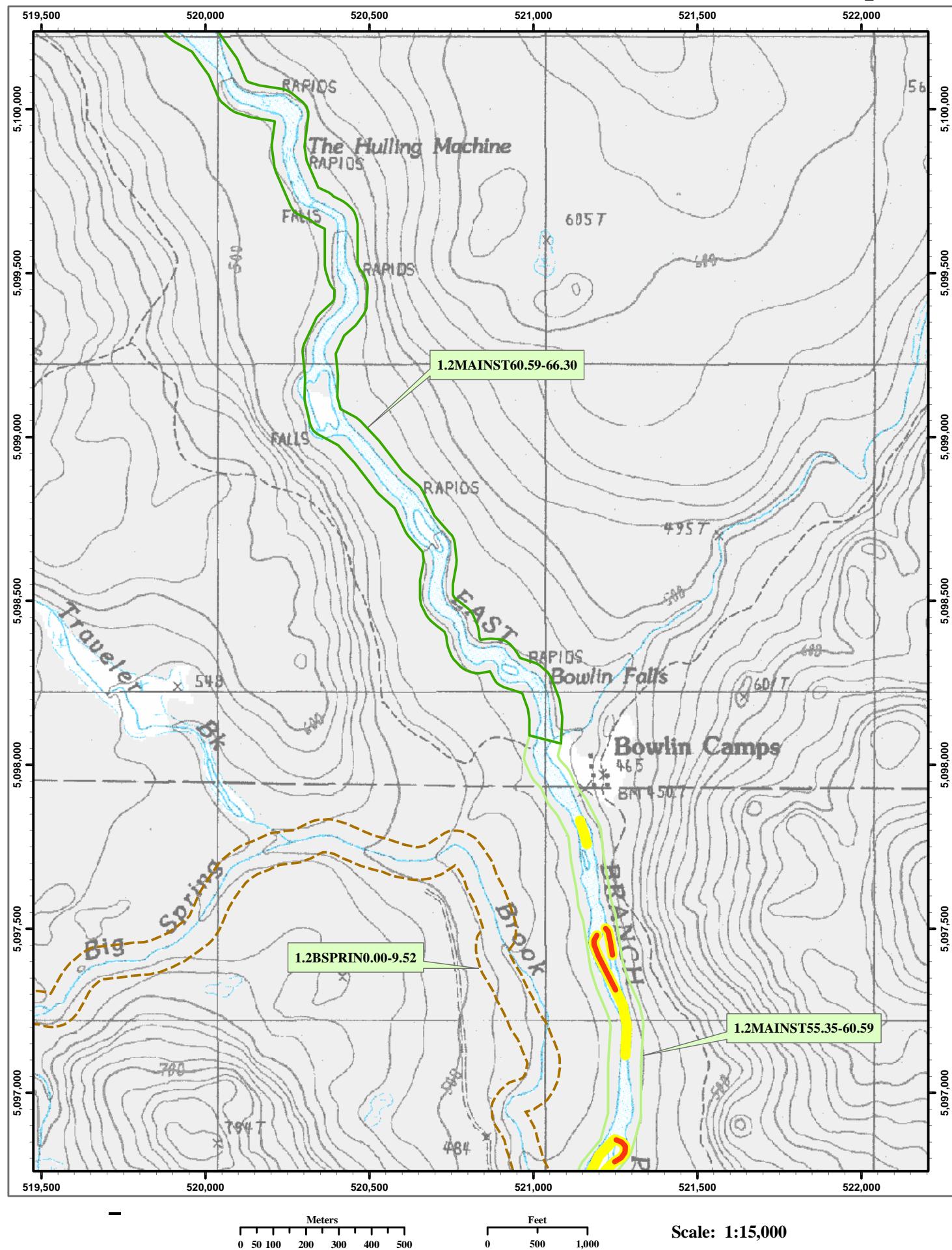
Map 10



Penobscot River

East Branch

Map 11



Meters
0 50 100 200 300 400 500

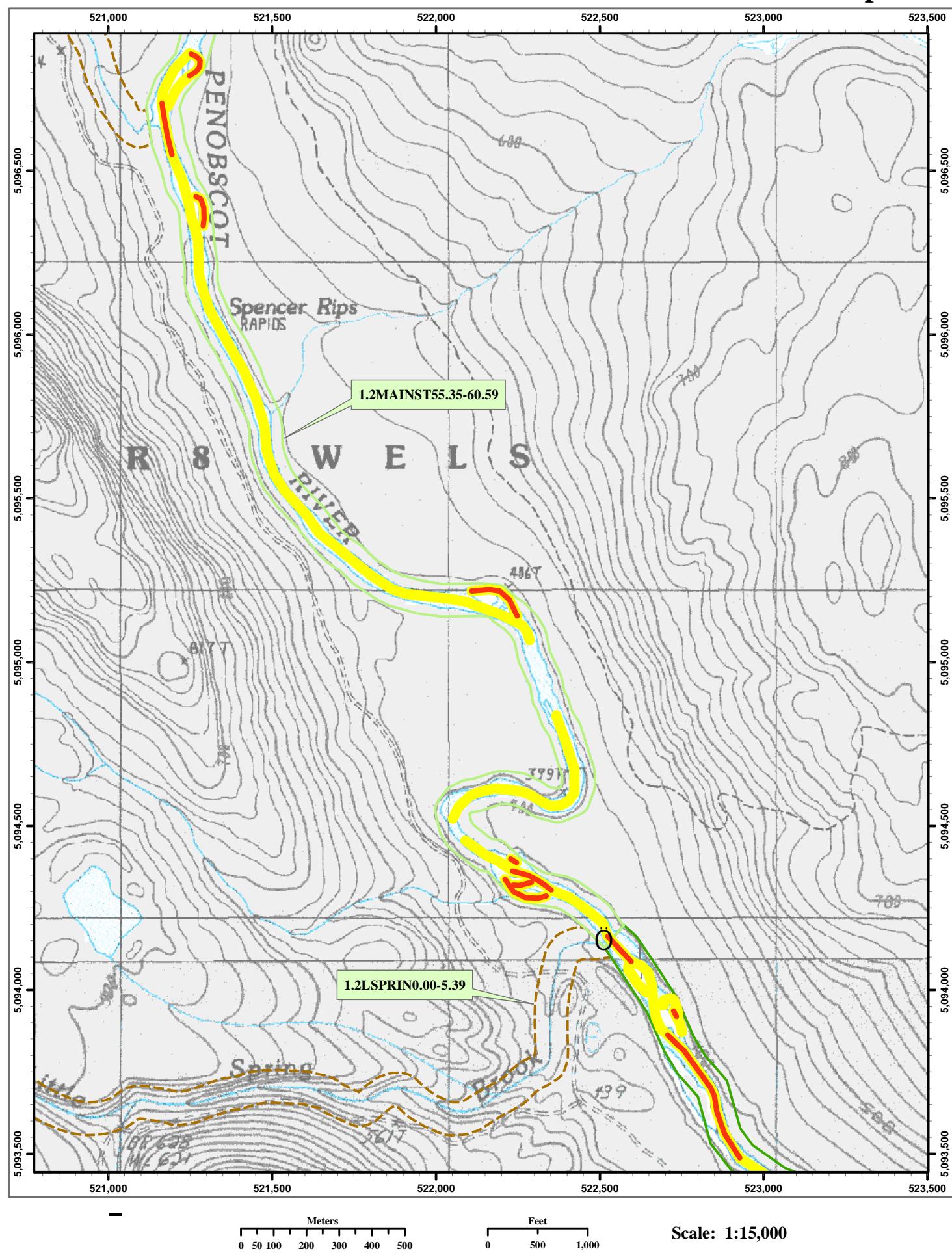
Feet
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Scale: 1:15,000

Penobscot River

East Branch

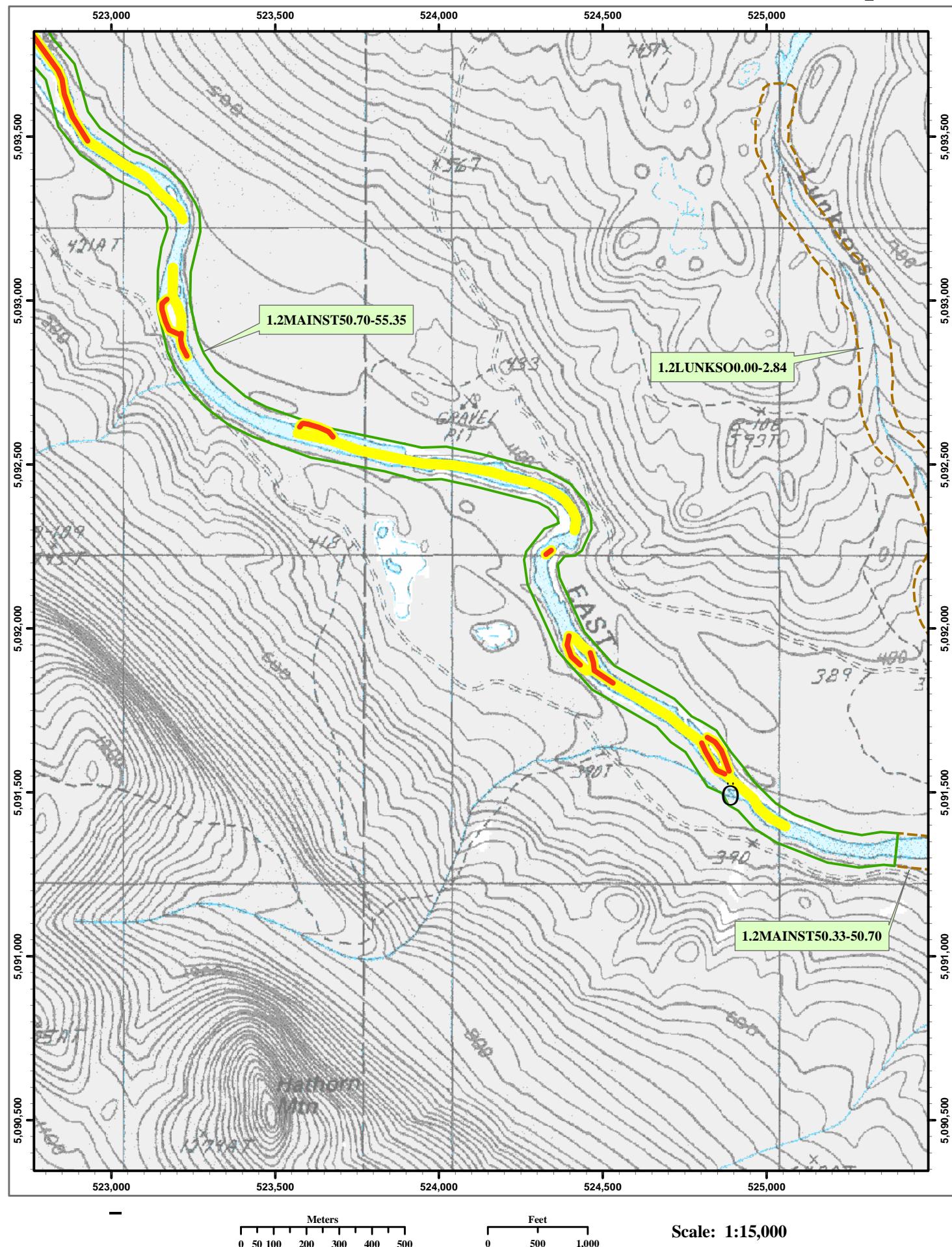
Map 12



Penobscot River

East Branch

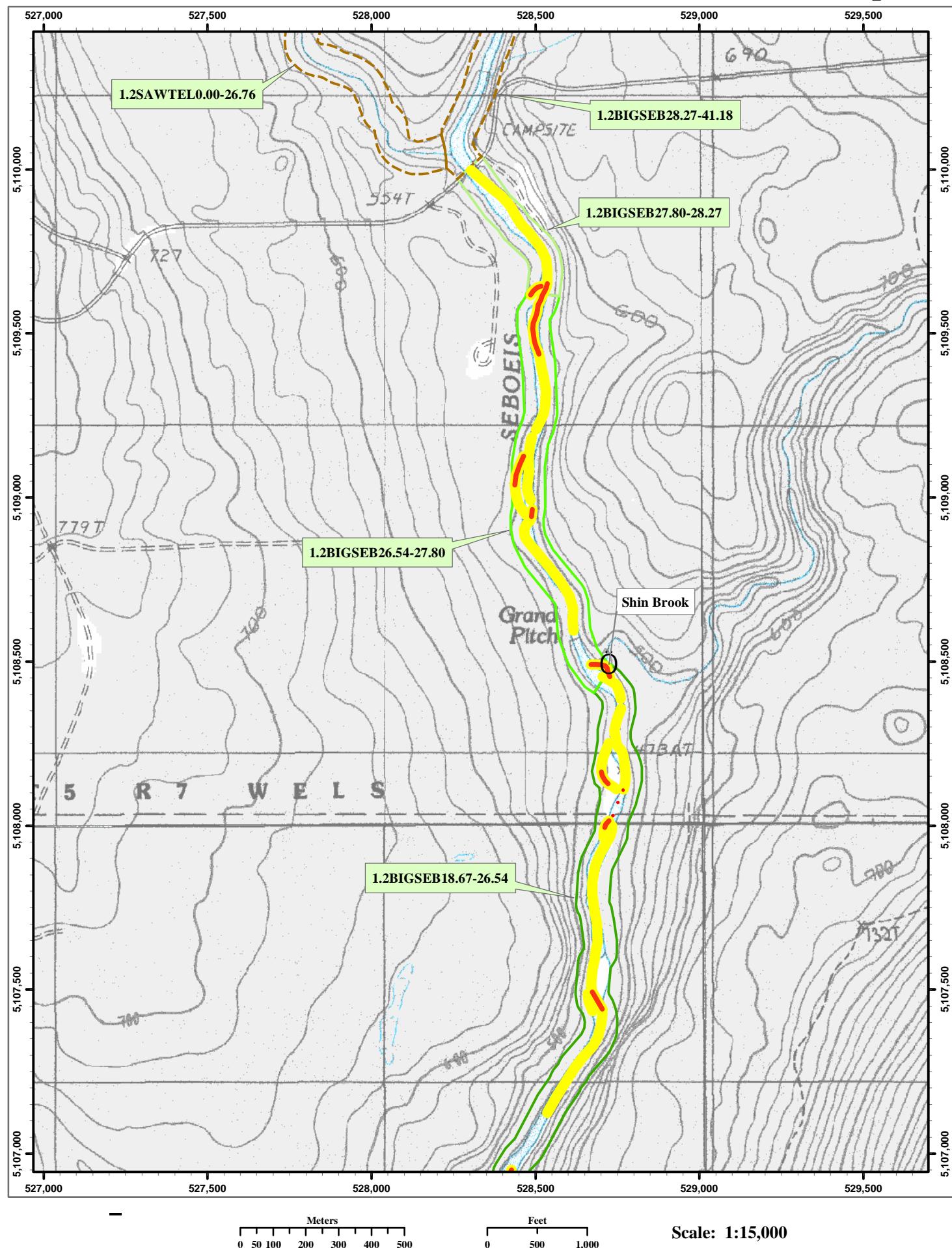
Map 13



Penobscot River

Seboeis River

Map 14



Meters
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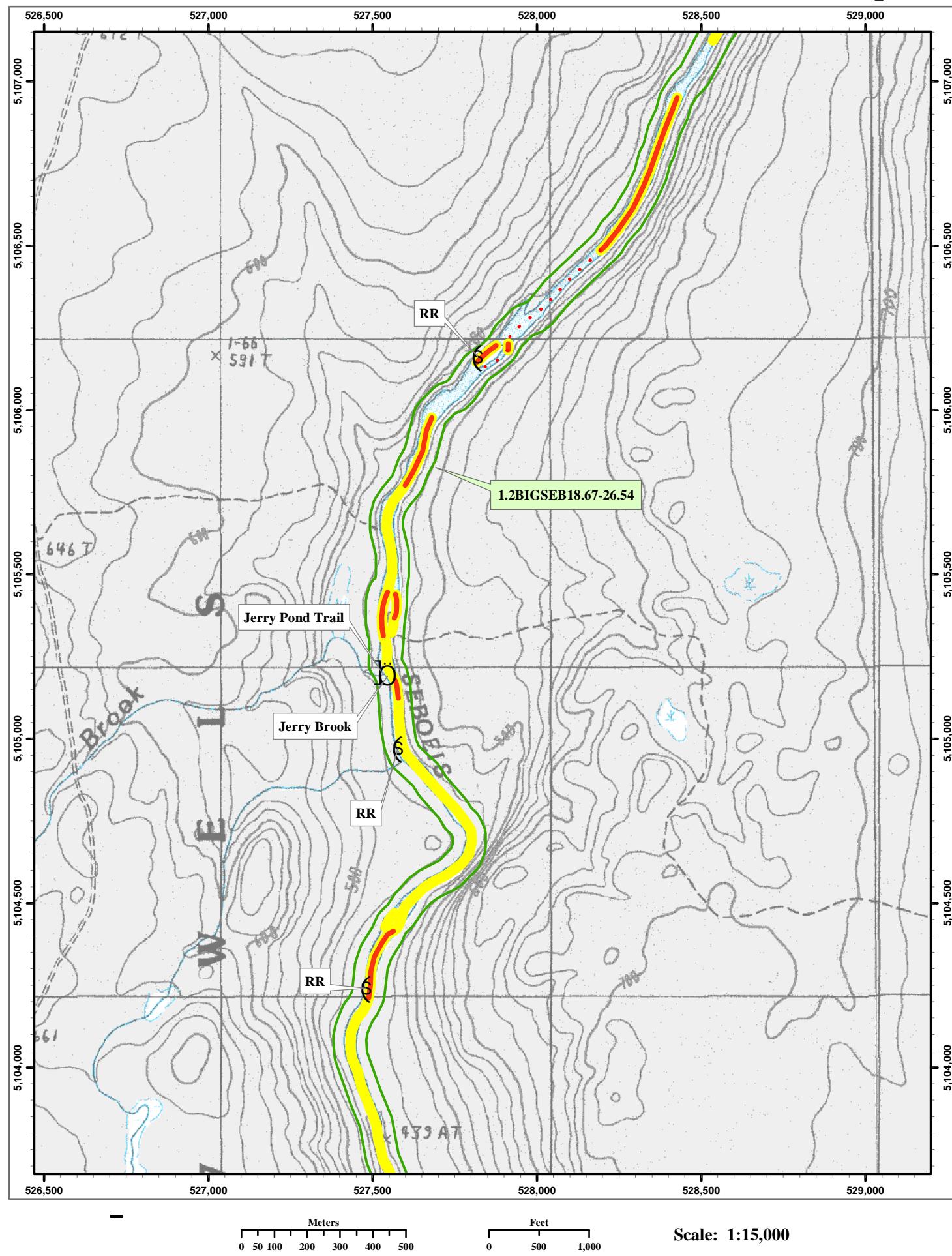
Feet
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Scale: 1:15,000

Penobscot River

Seboeis River

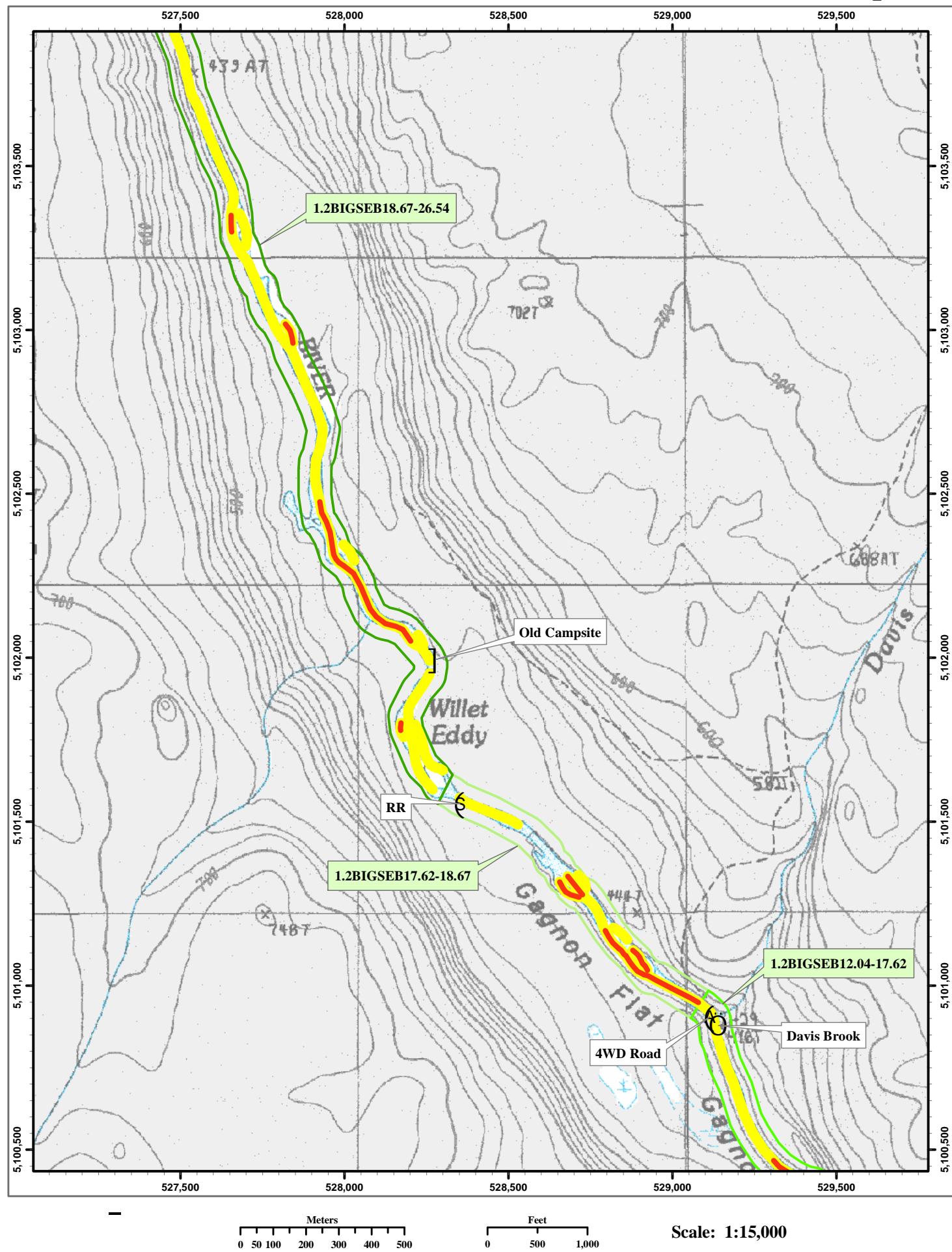
Map 15



Penobscot River

Seboeis River

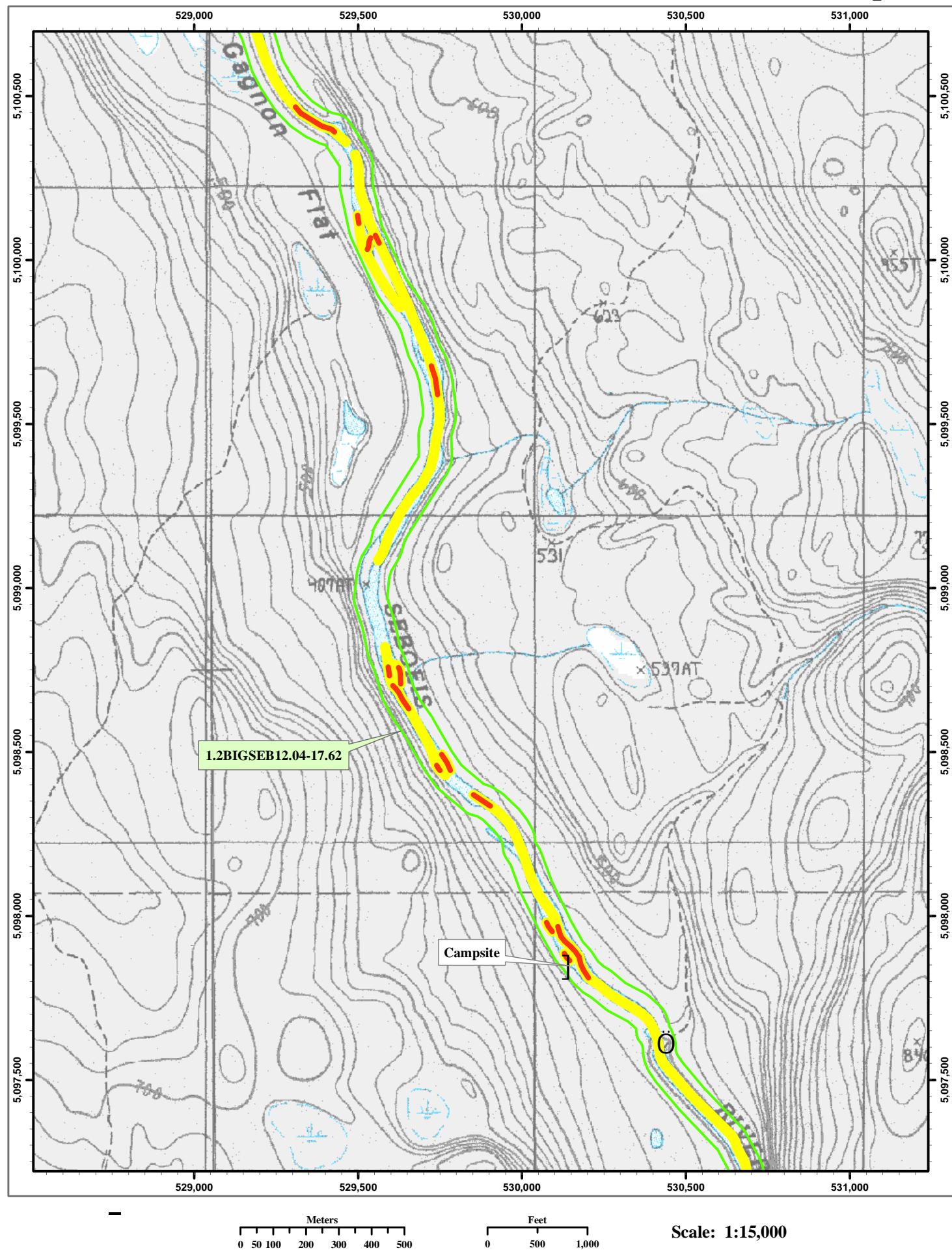
Map 16



Penobscot River

Seboeis River

Map 17



Meters
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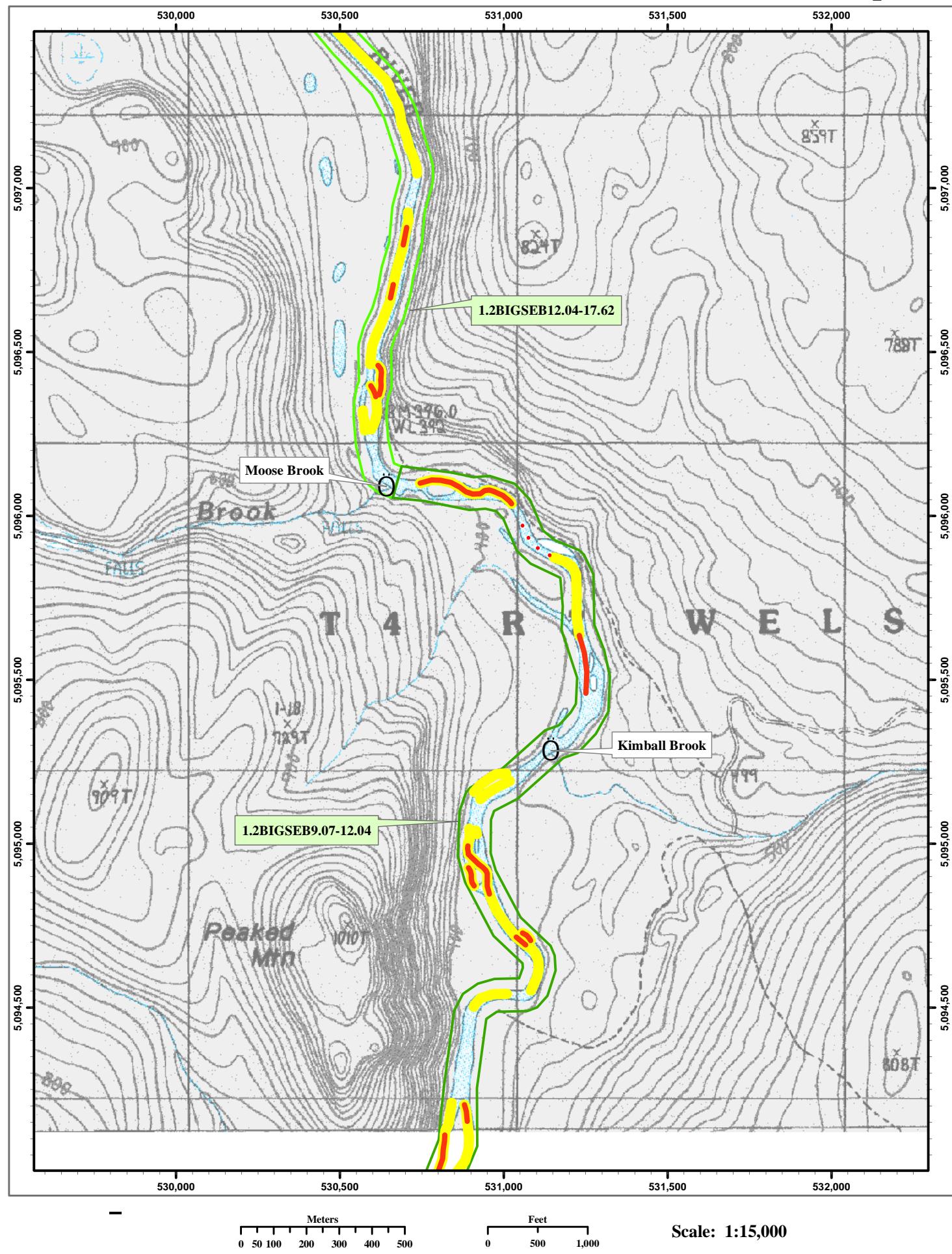
Feet
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Scale: 1:15,000

Penobscot River

Seboeis River

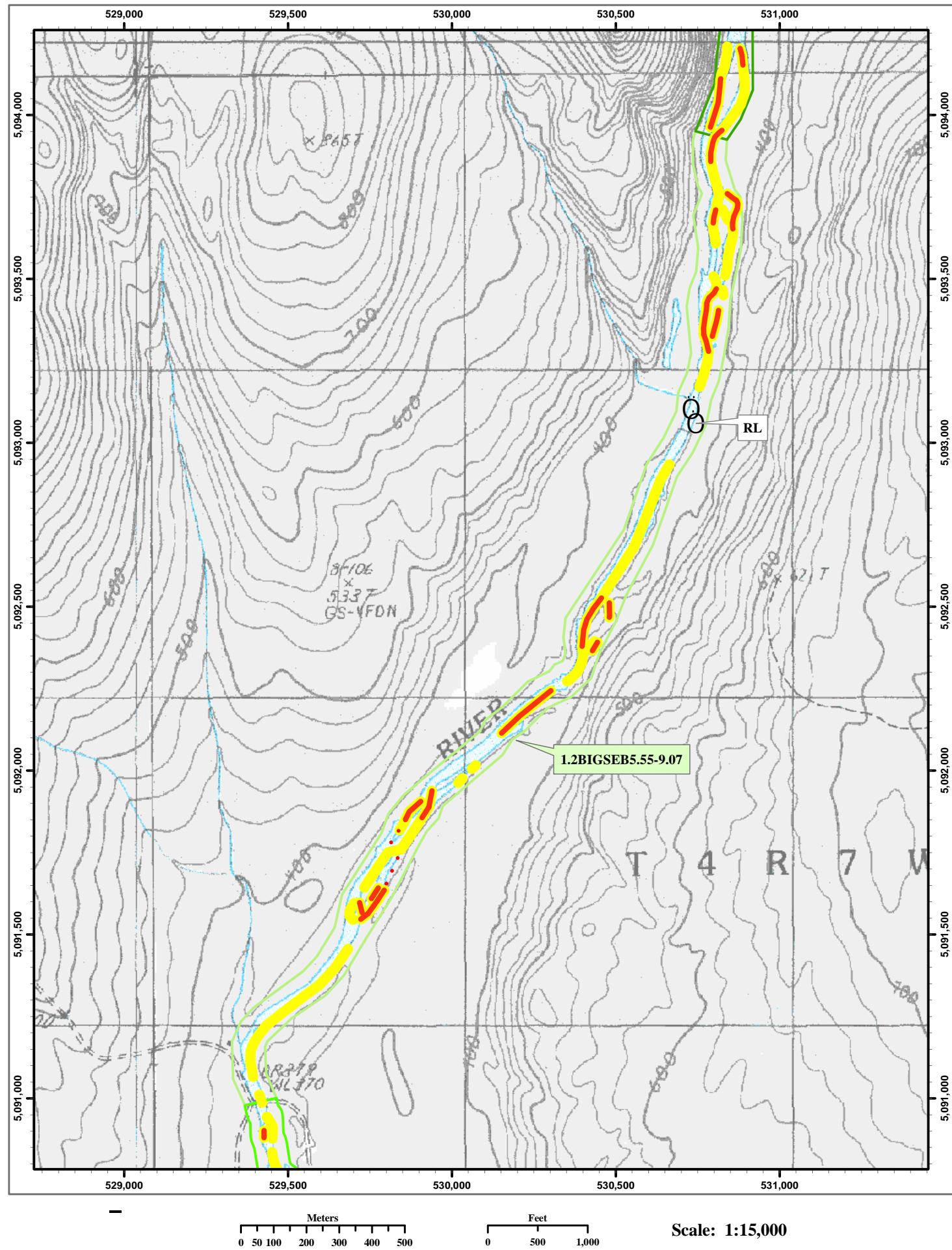
Map 18



Penobscot River

Seboeis River

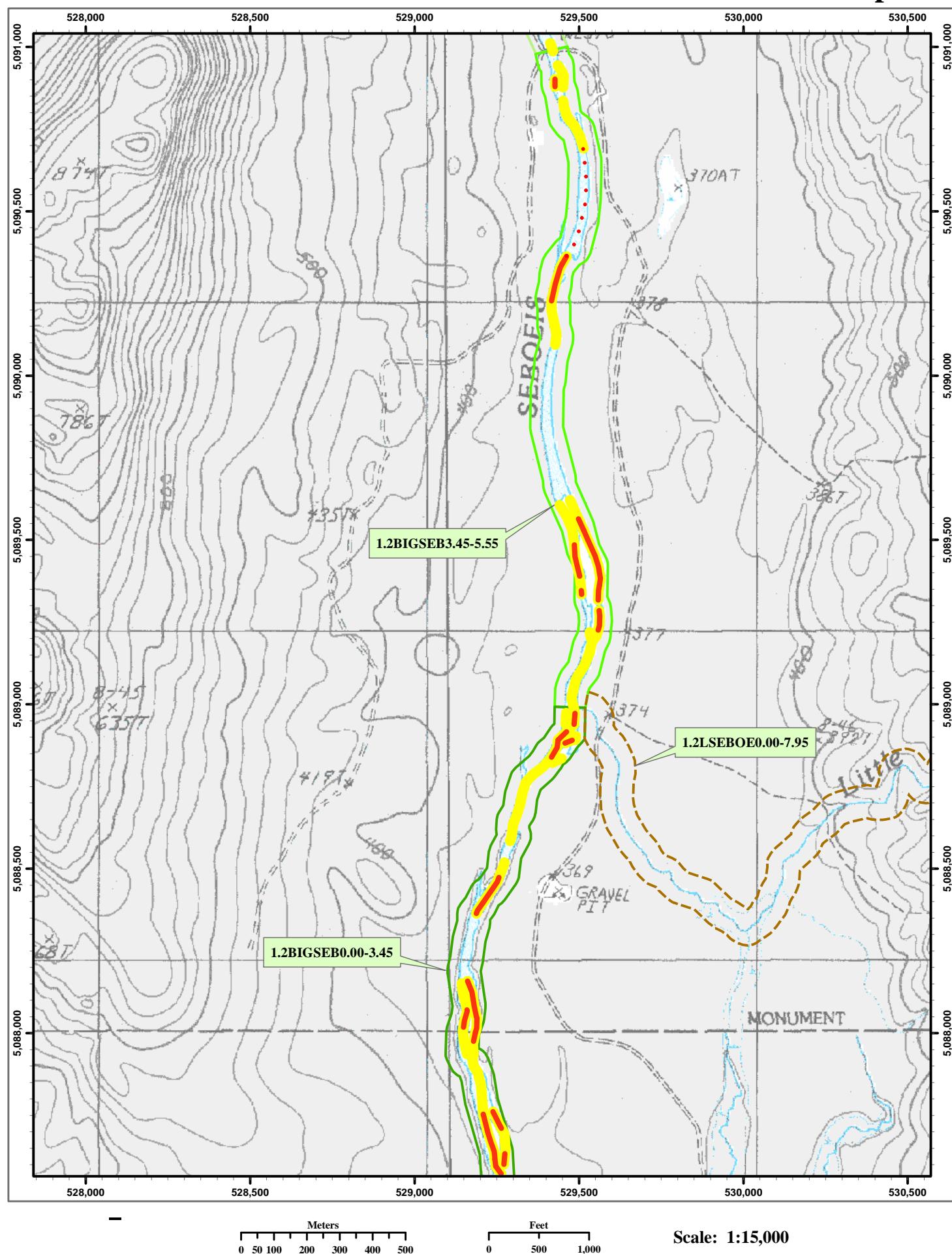
Map 19



Penobscot River

Seboeis River

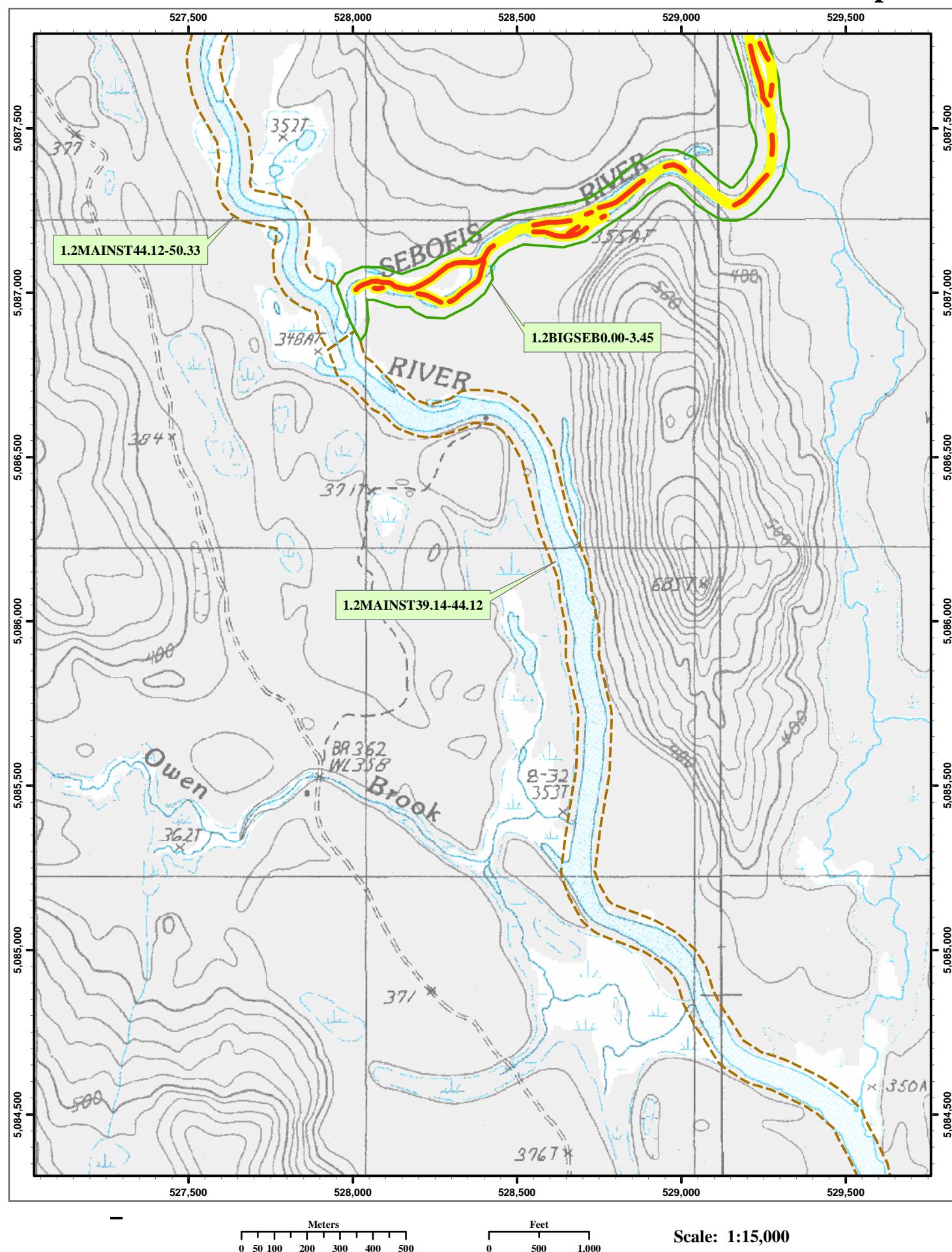
Map 20



Penobscot River

Seboeis River

Map 21



Meters
0 50 100 200 300 400 500

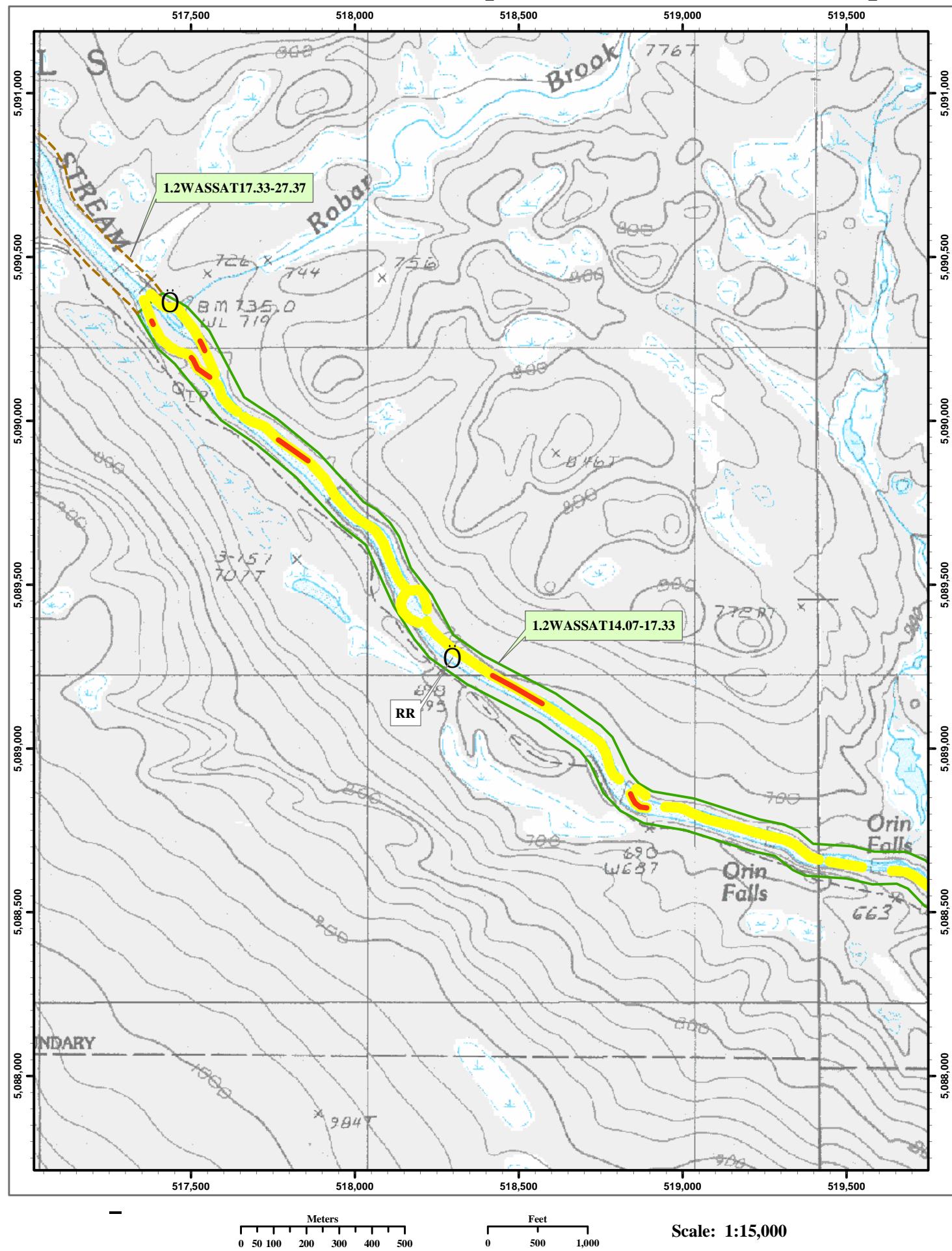
Feet
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Scale: 1:15,000

Penobscot River

Wassataquoik Stream

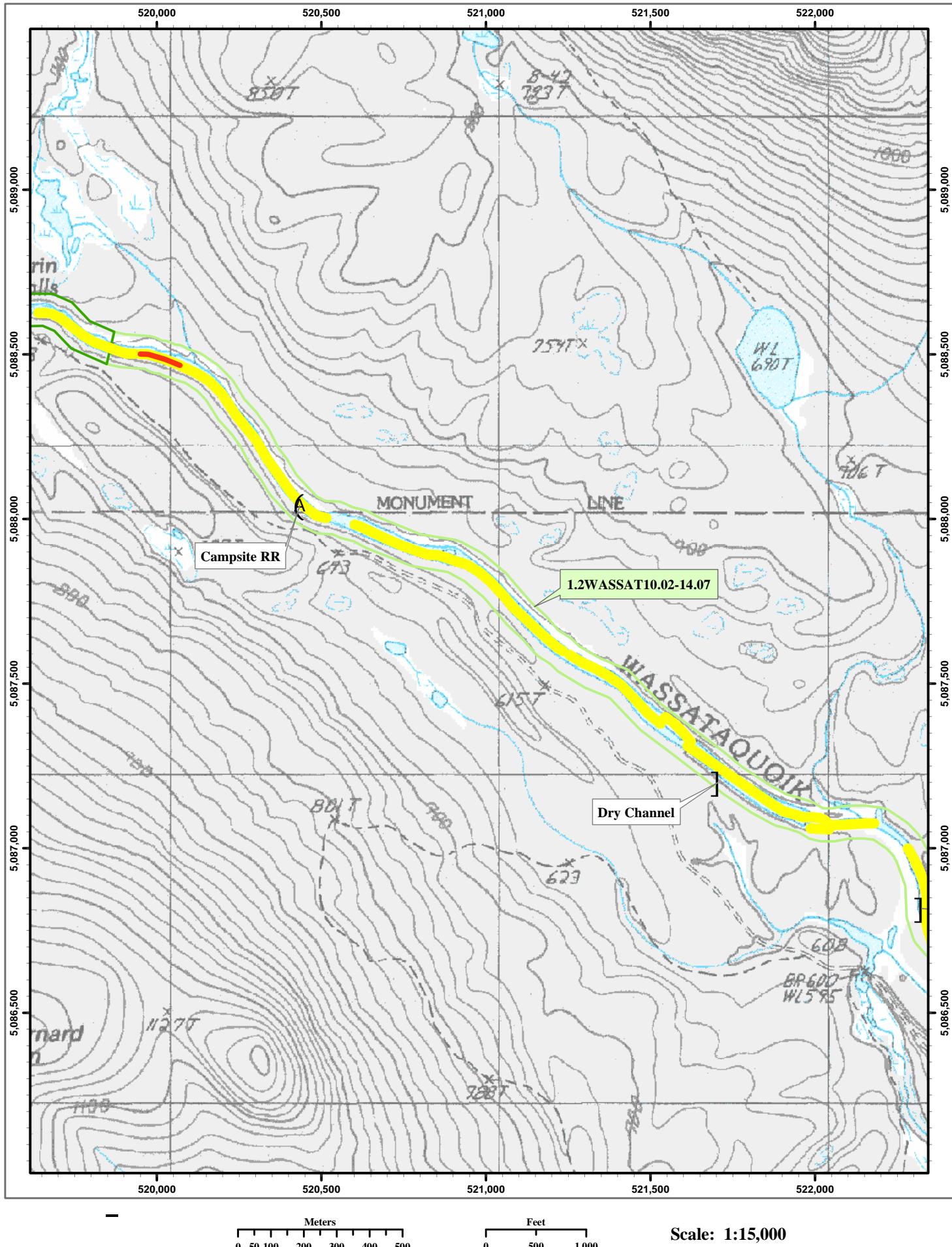
Map 22



Penobscot River

Wassataquoik Stream

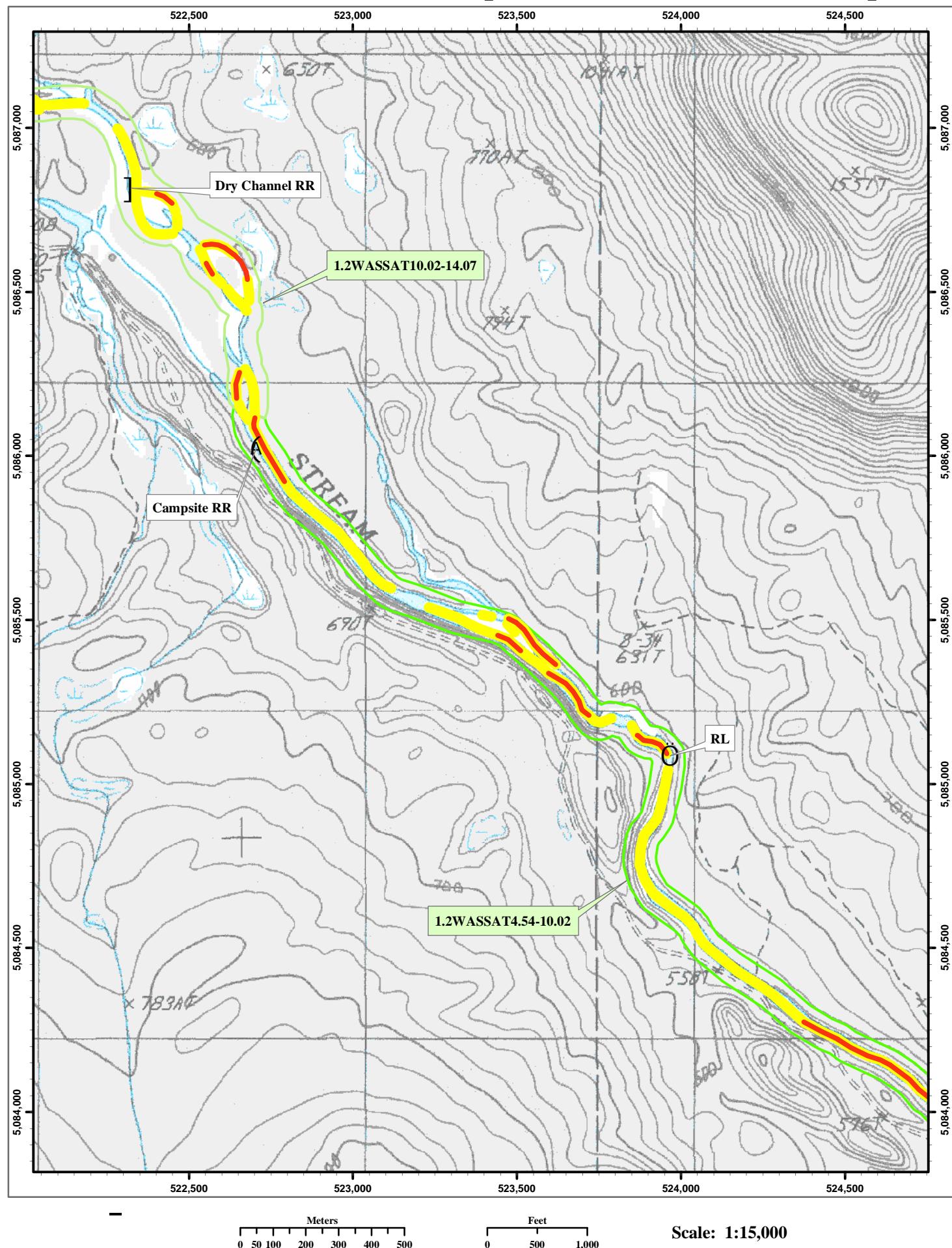
Map 23



Penobscot River

Wassataquoik Stream

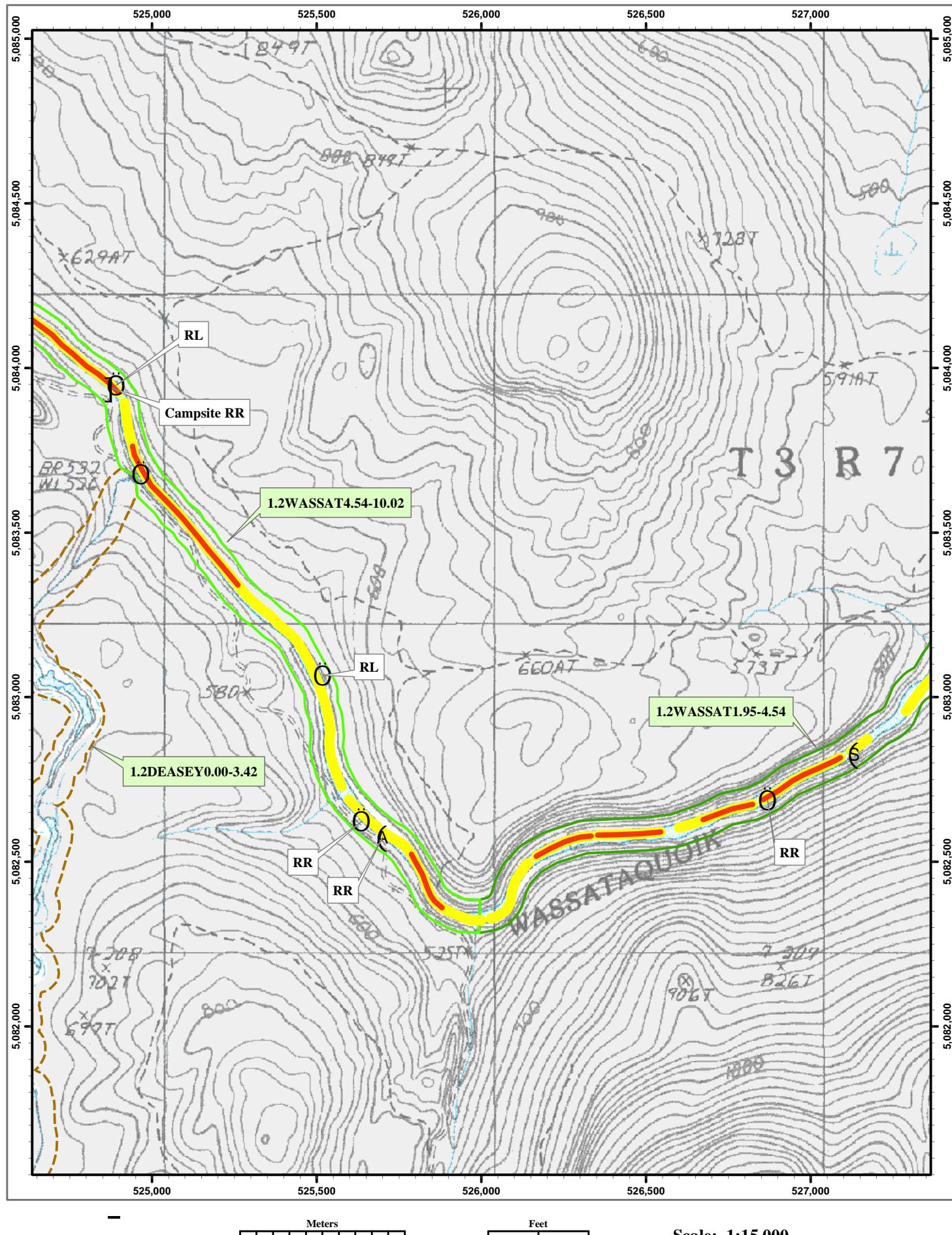
Map 24



Penobscot River

Wassataquoik Stream

Map 25



Meters

Feet

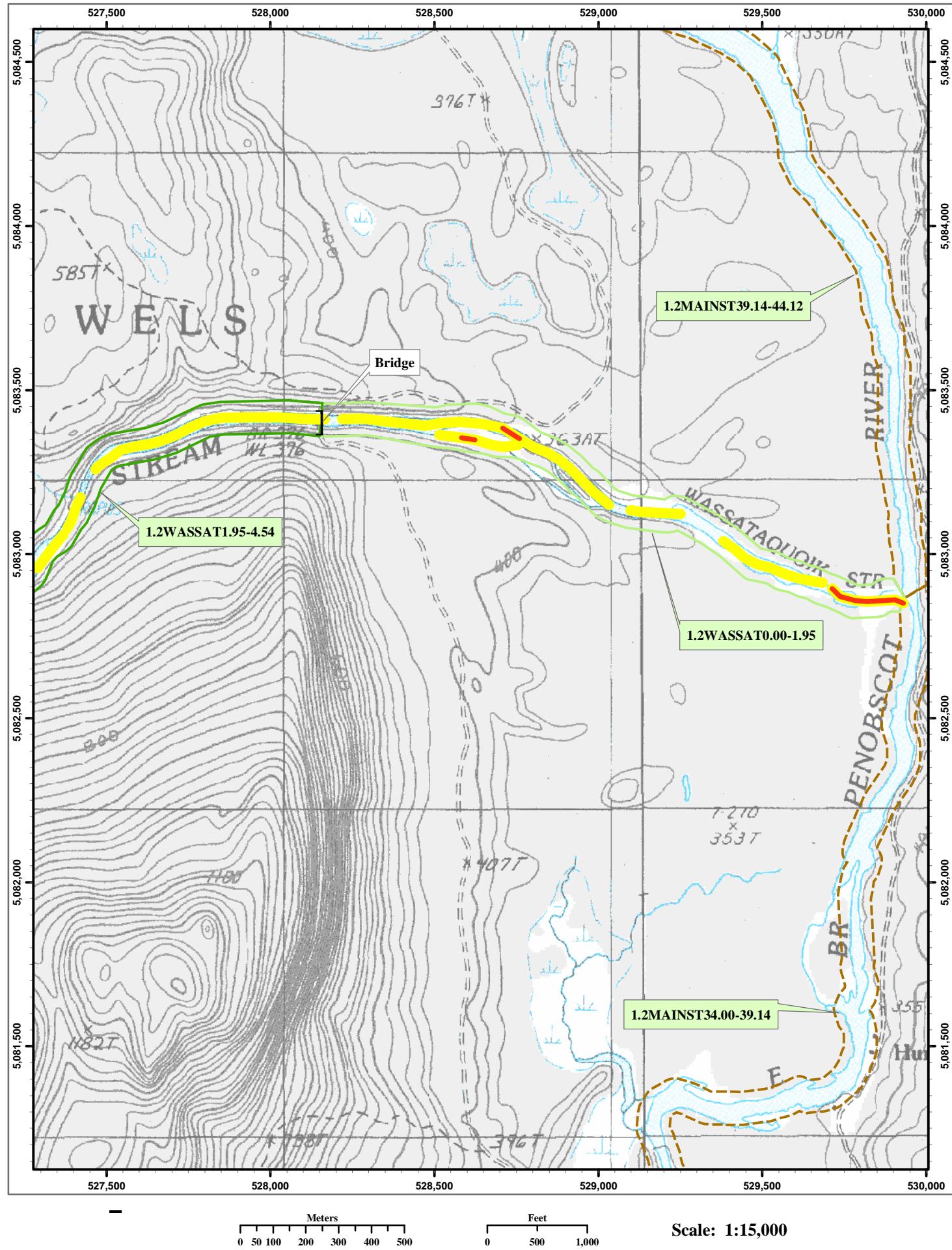
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Scale: 1:15,000

Penobscot River

Wassataquoik Stream

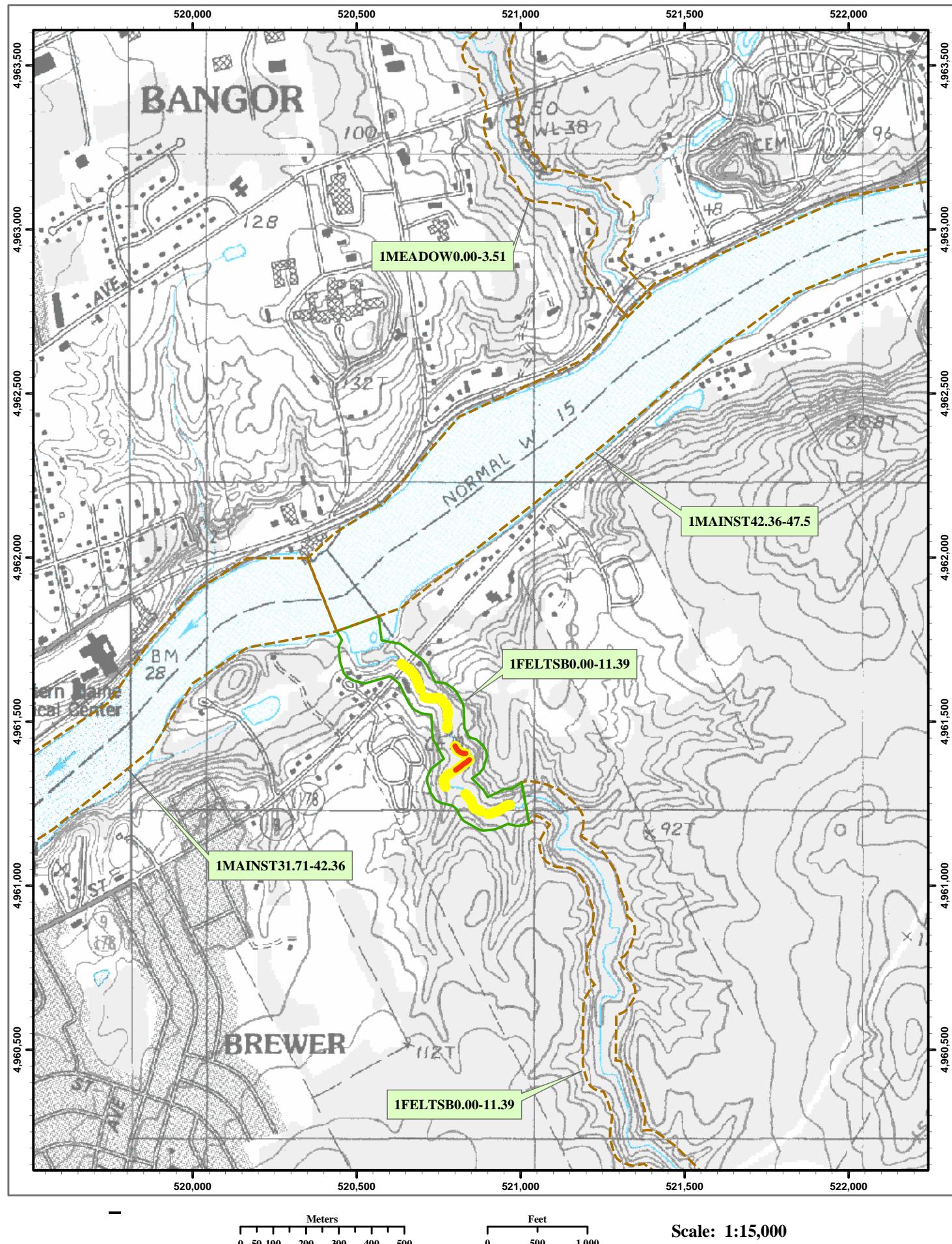
Map 26



Penobscot River

Felts Brook

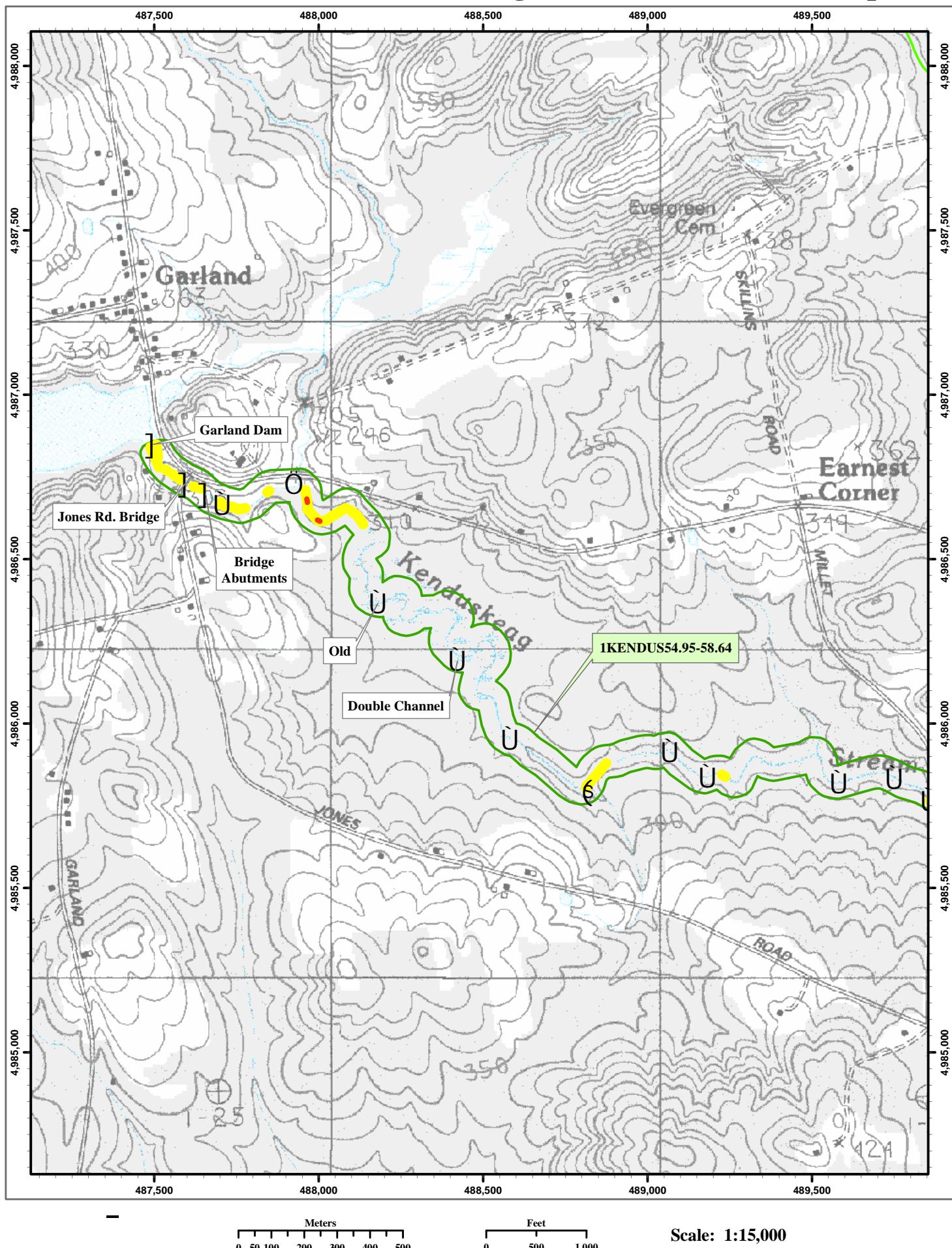
Map 27



Penobscot River

Kenduskeag Stream

Map 28



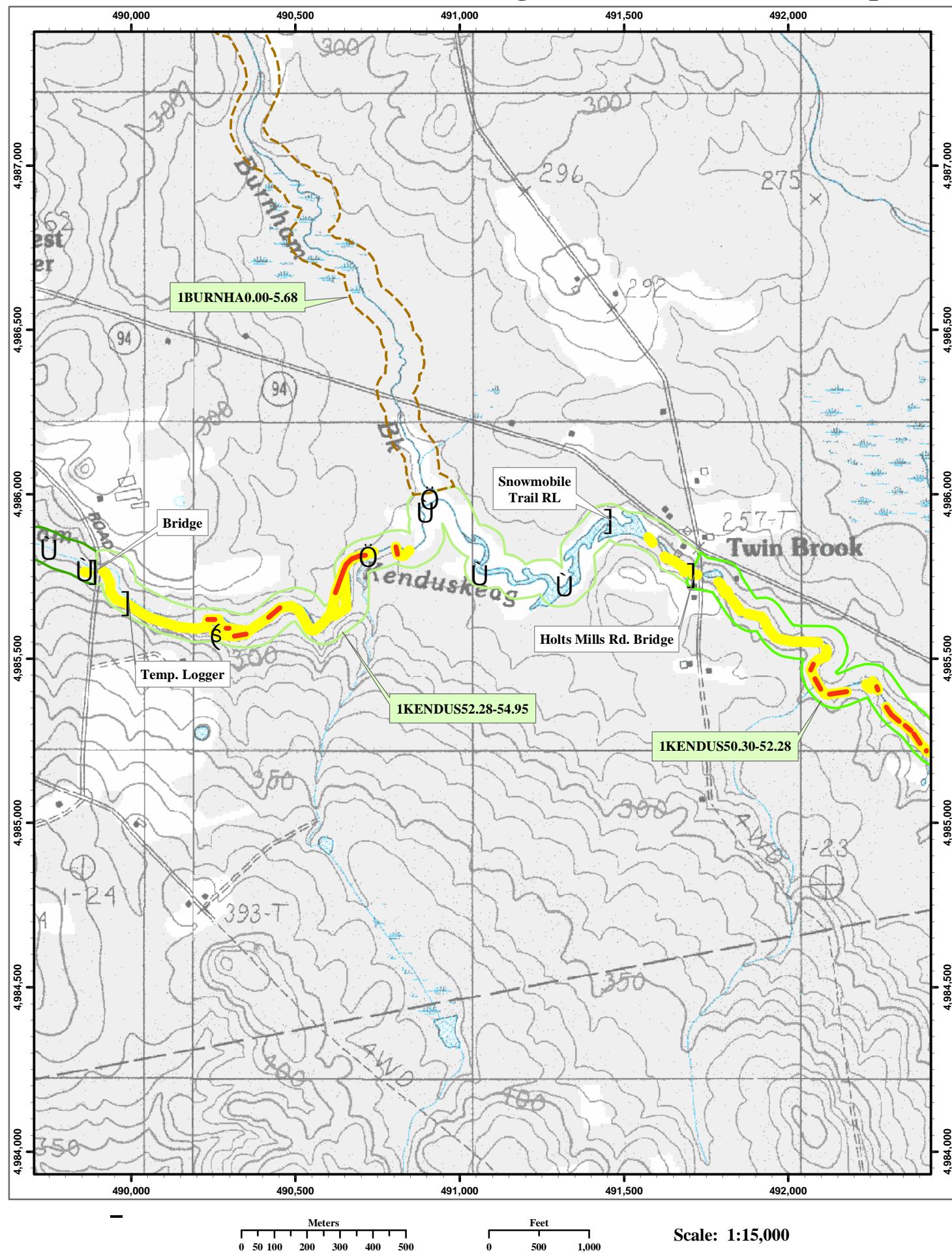
Scale: 1:15,000

Maine Atlantic Salmon Habitat Atlas April 2006

Penobscot River

Kenduskeag Stream

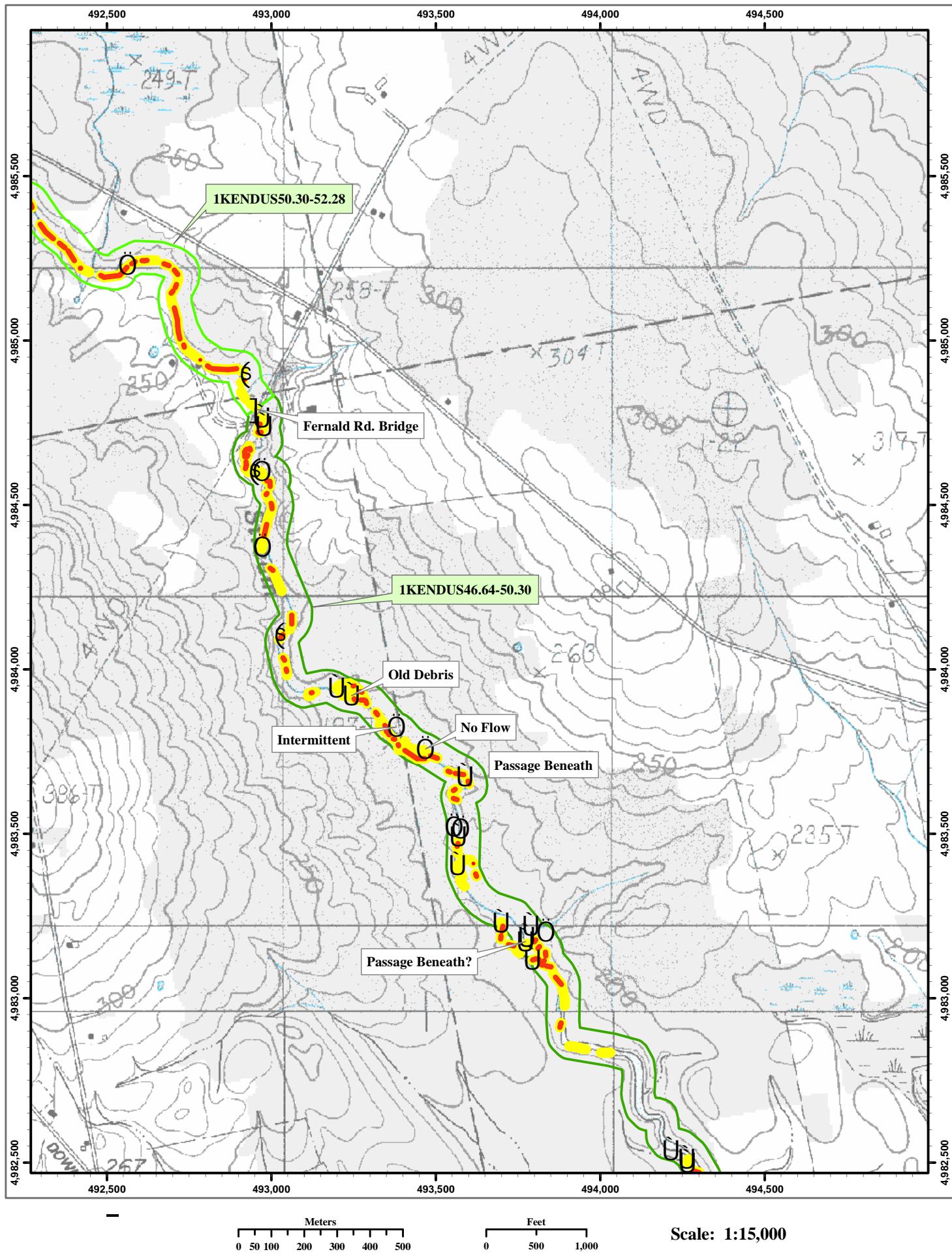
Map 29



Penobscot River

Kenduskeag Stream

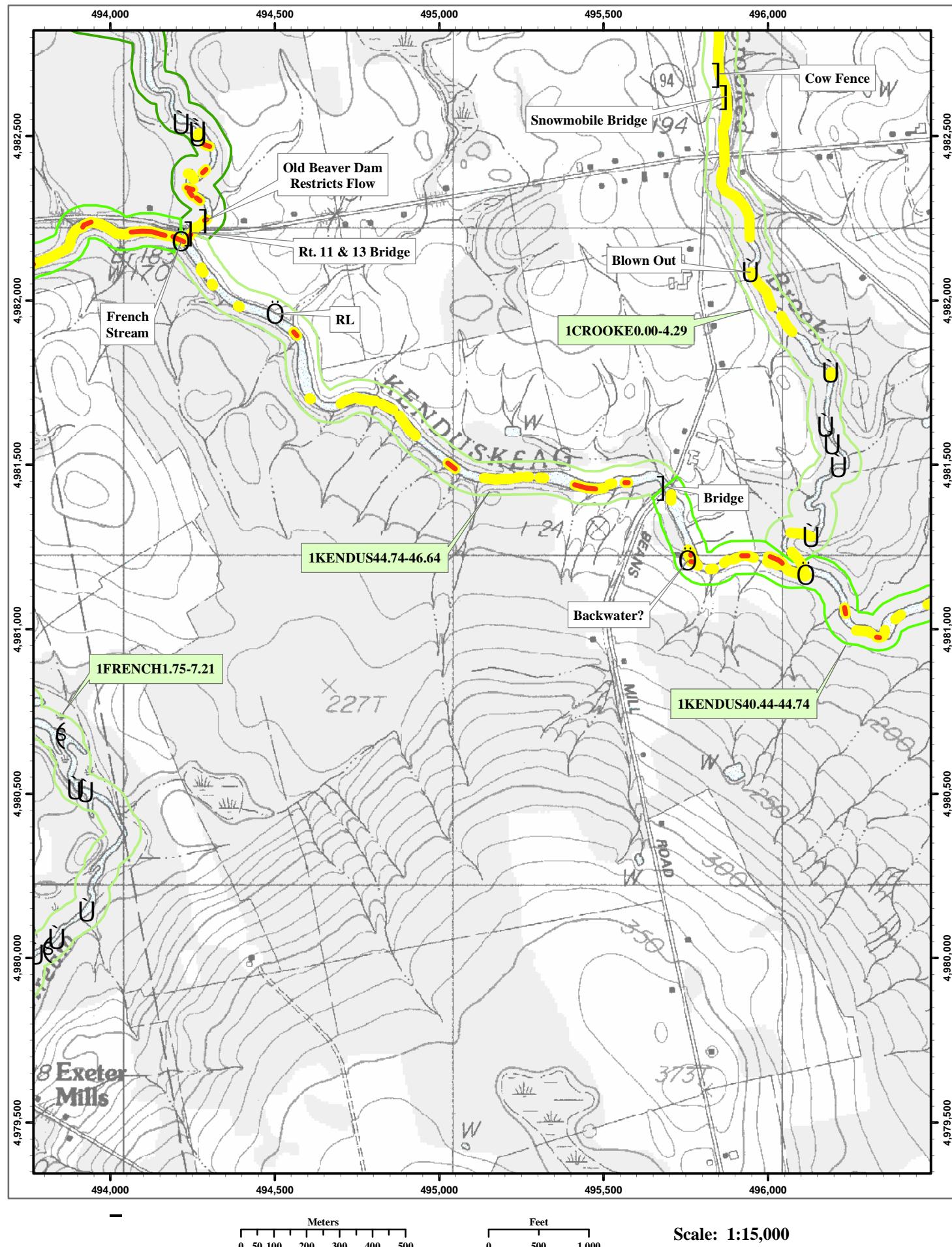
Map 30



Penobscot River

Kenduskeag Stream

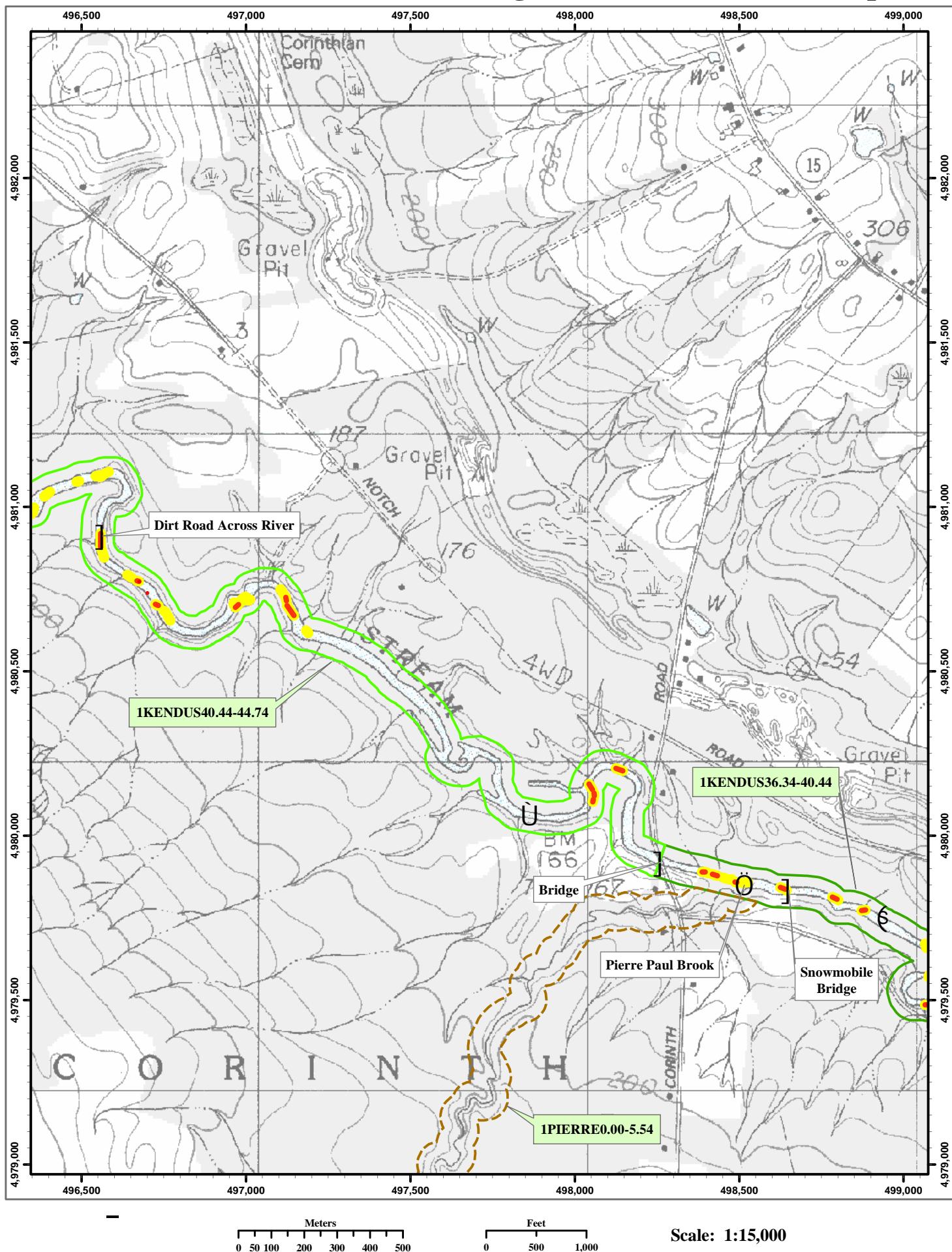
Map 31



Penobscot River

Kenduskeag Stream

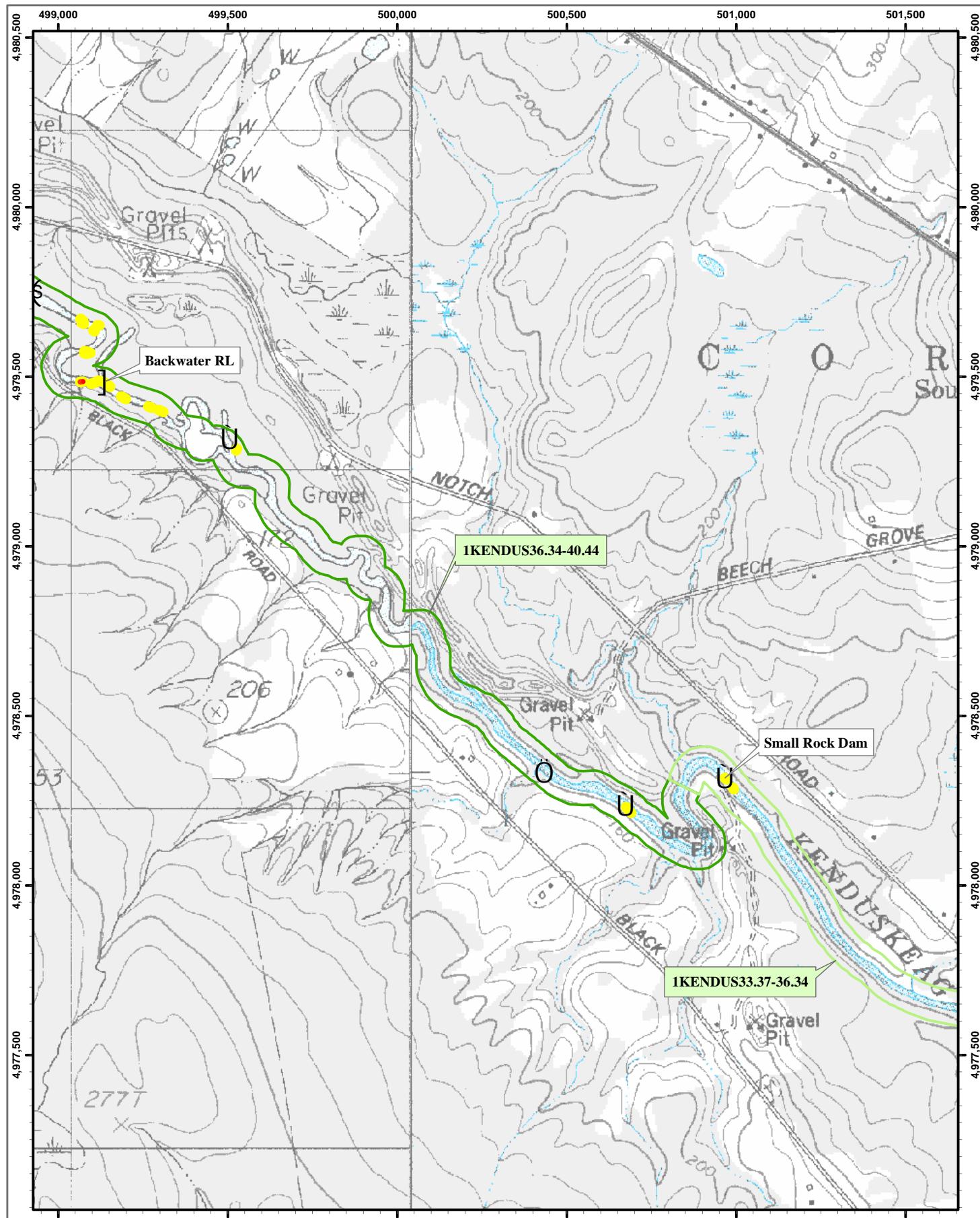
Map 32



Penobscot River

Kenduskeag Stream

Map 33



Meters
0 50 100 200 300 400 500

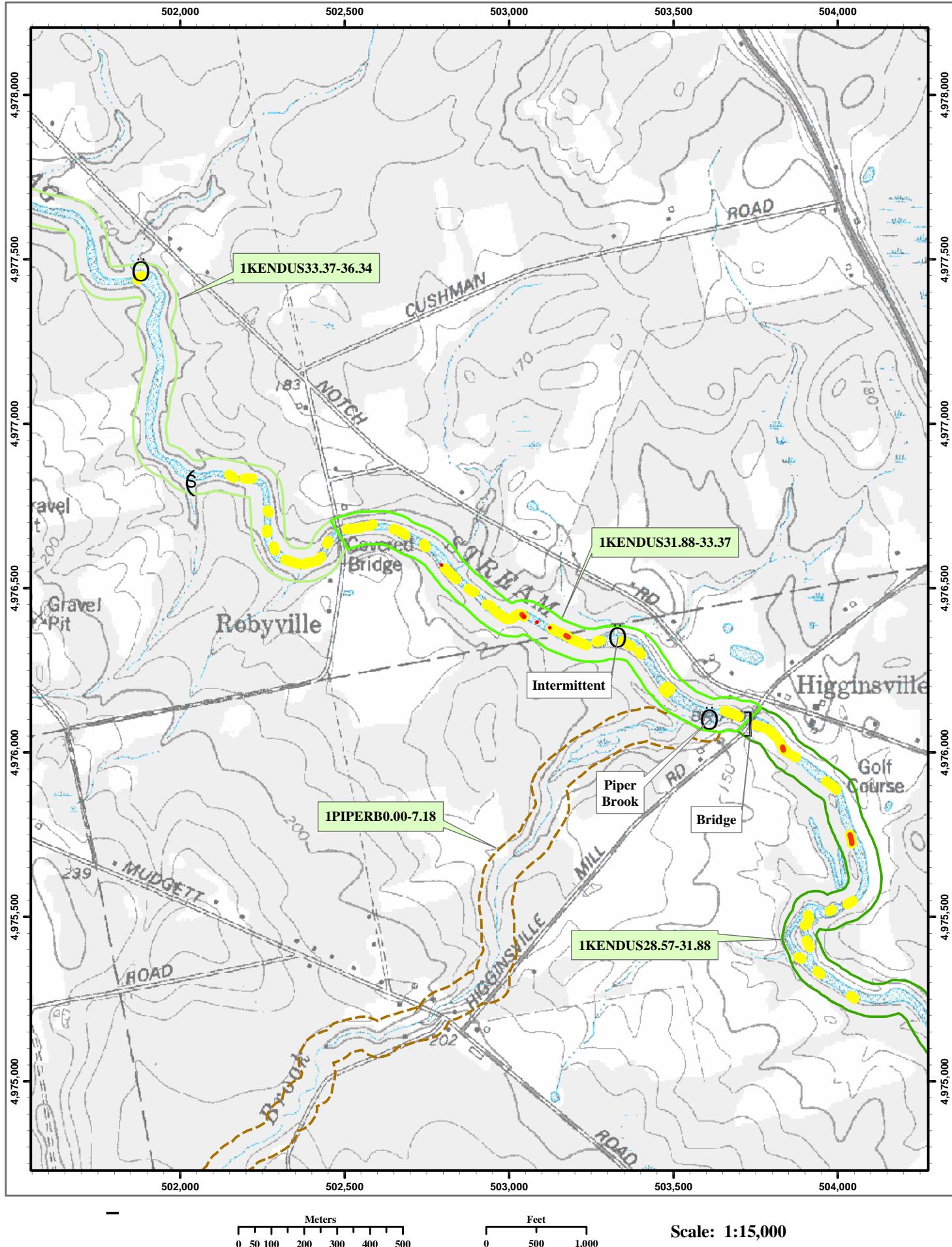
Feet
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Scale: 1:15,000

Penobscot River

Kenduskeag Stream

Map 34



Meters
0 50 100 200 300 400 500

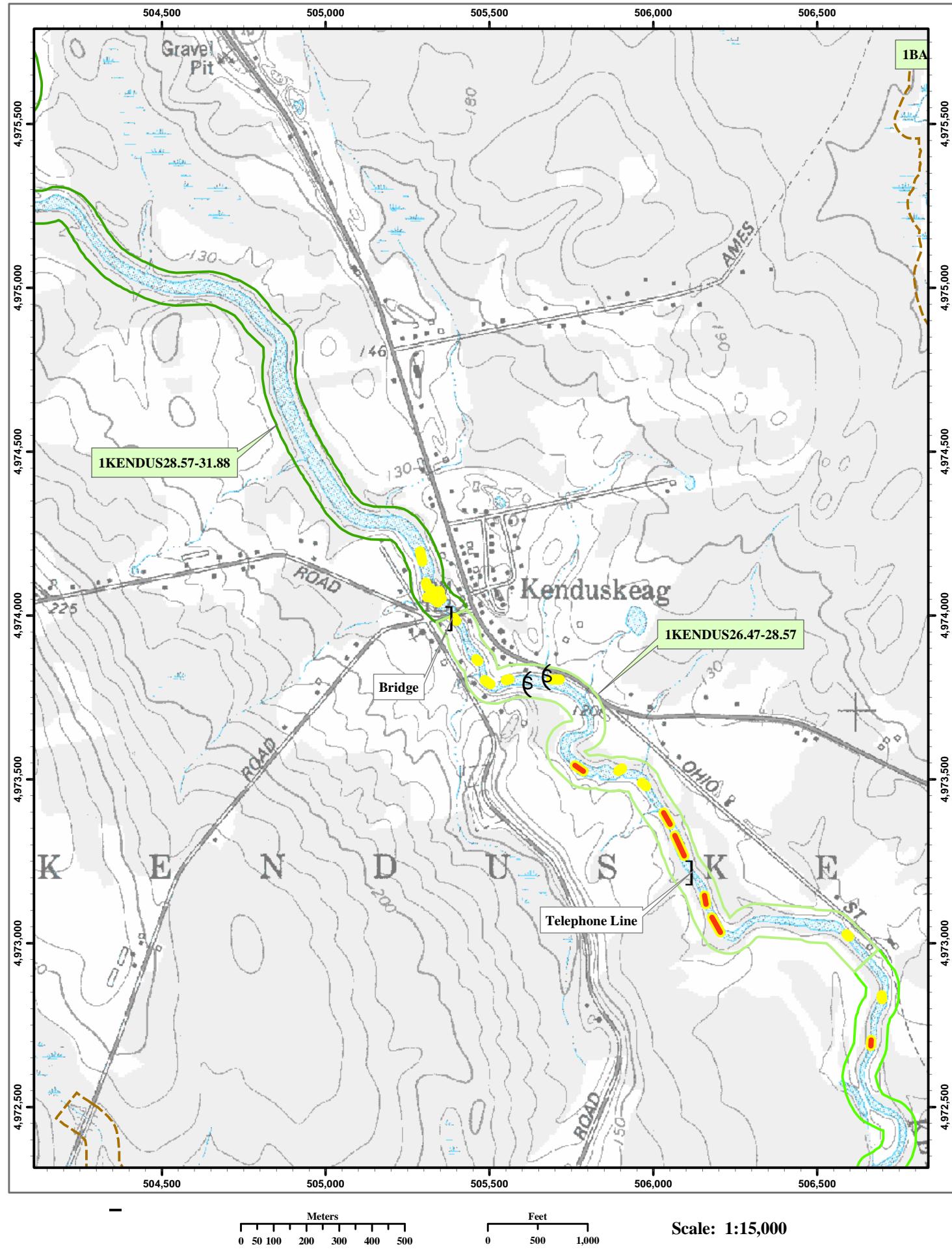
Feet
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Scale: 1:15,000

Penobscot River

Kenduskeag Stream

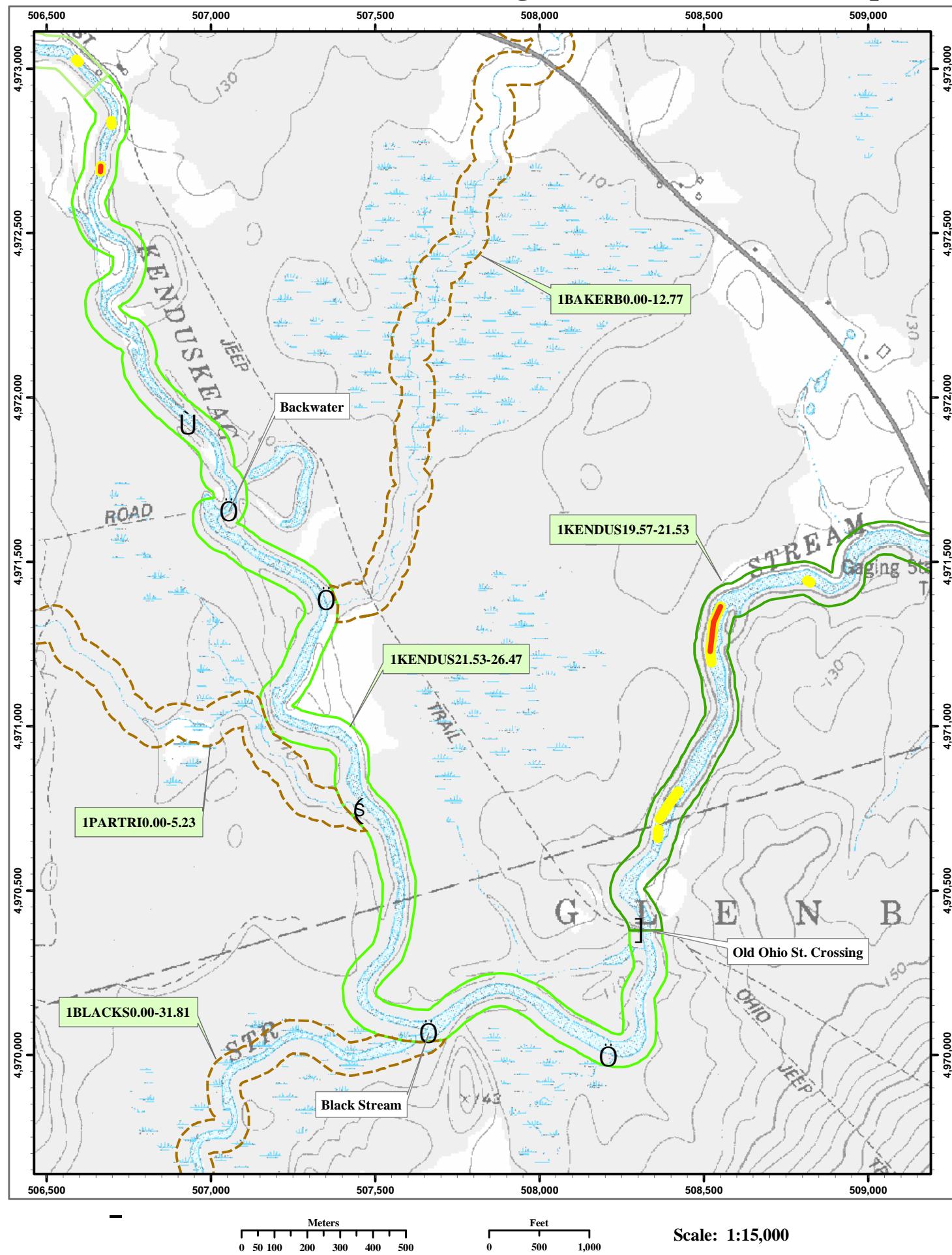
Map 35



Penobscot River

Kenduskeag Stream

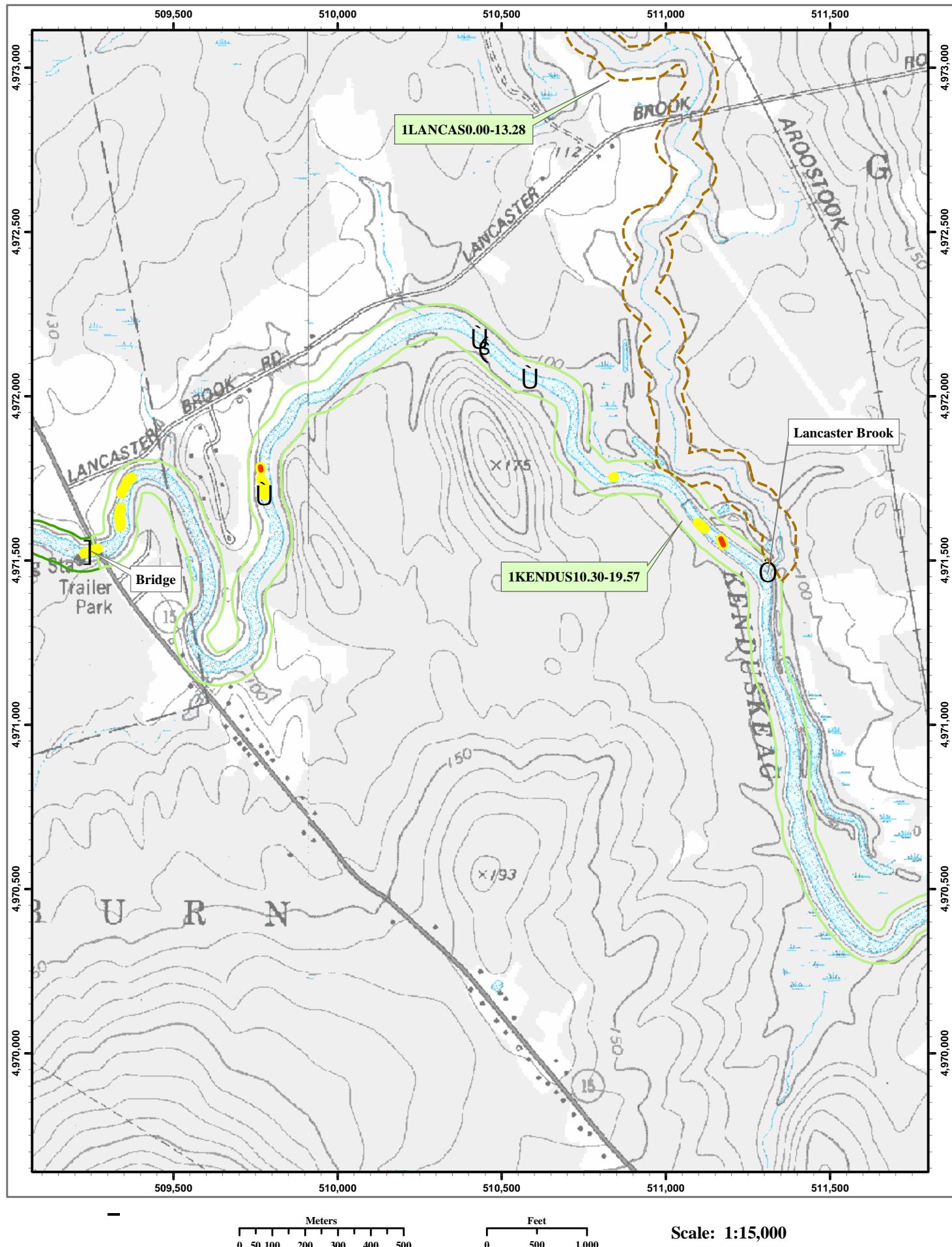
Map 36



Penobscot River

Kenduskeag Stream

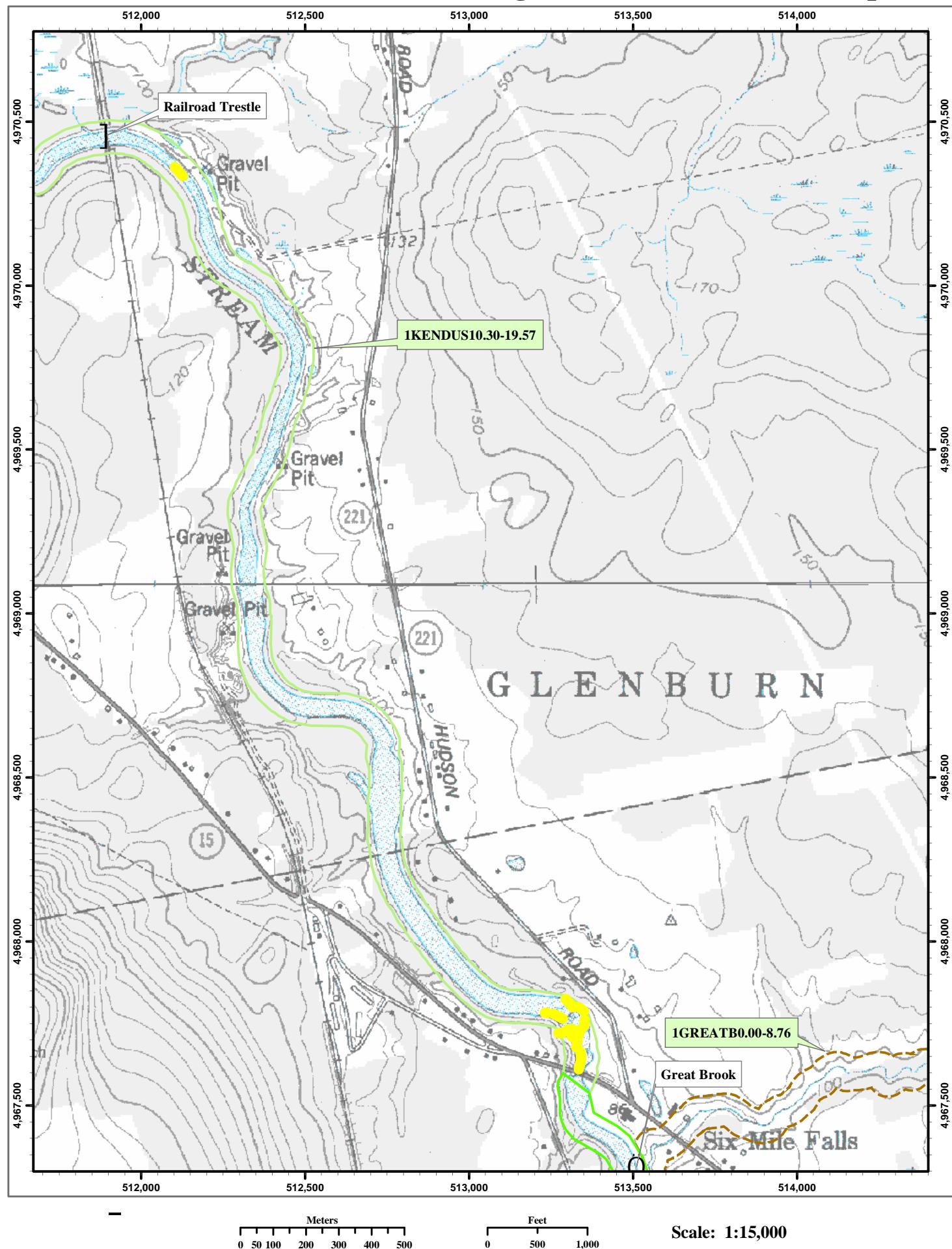
Map 37



Penobscot River

Kenduskeag Stream

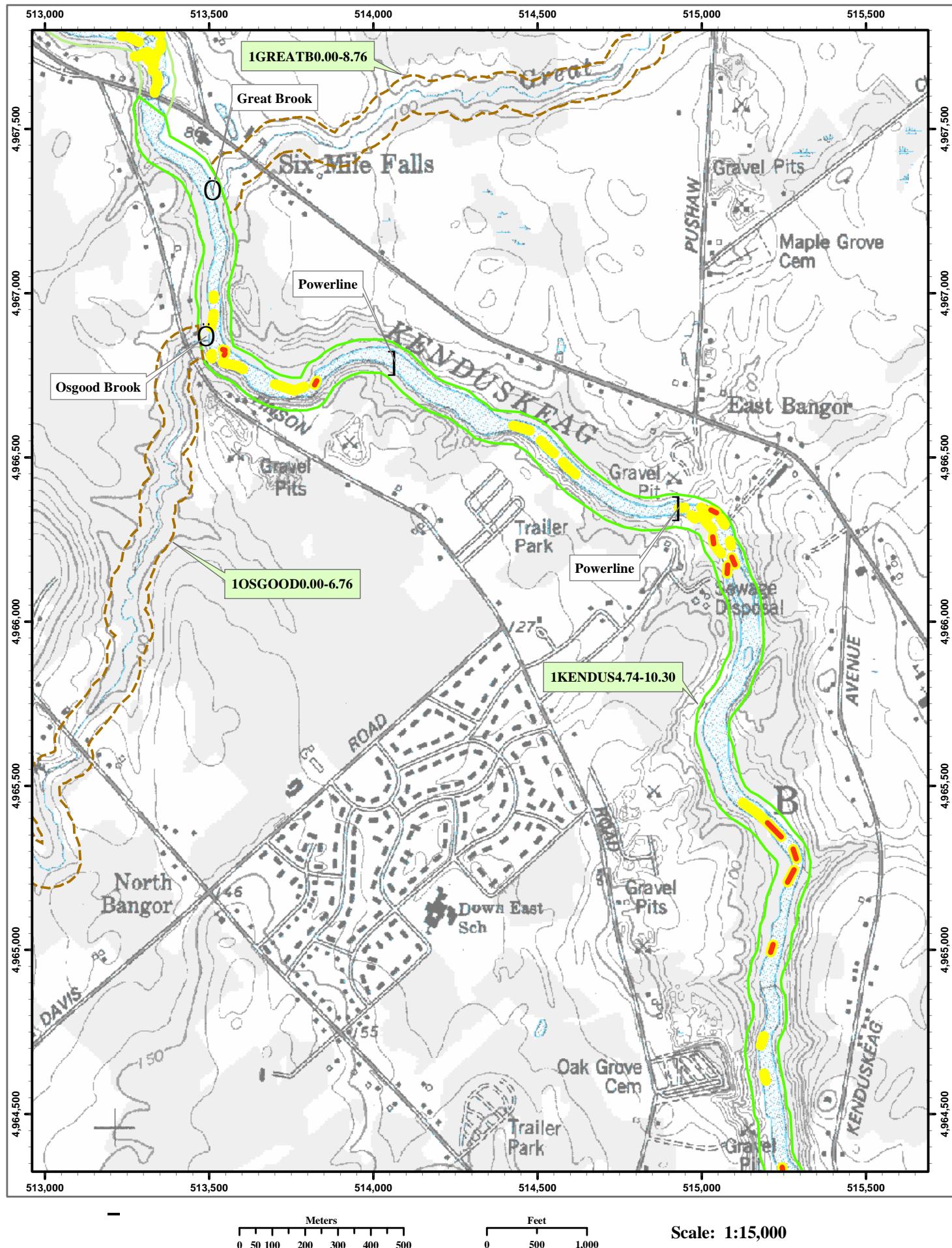
Map 38



Penobscot River

Kenduskeag Stream

Map 39



Meters
0 50 100 200 300 400 500

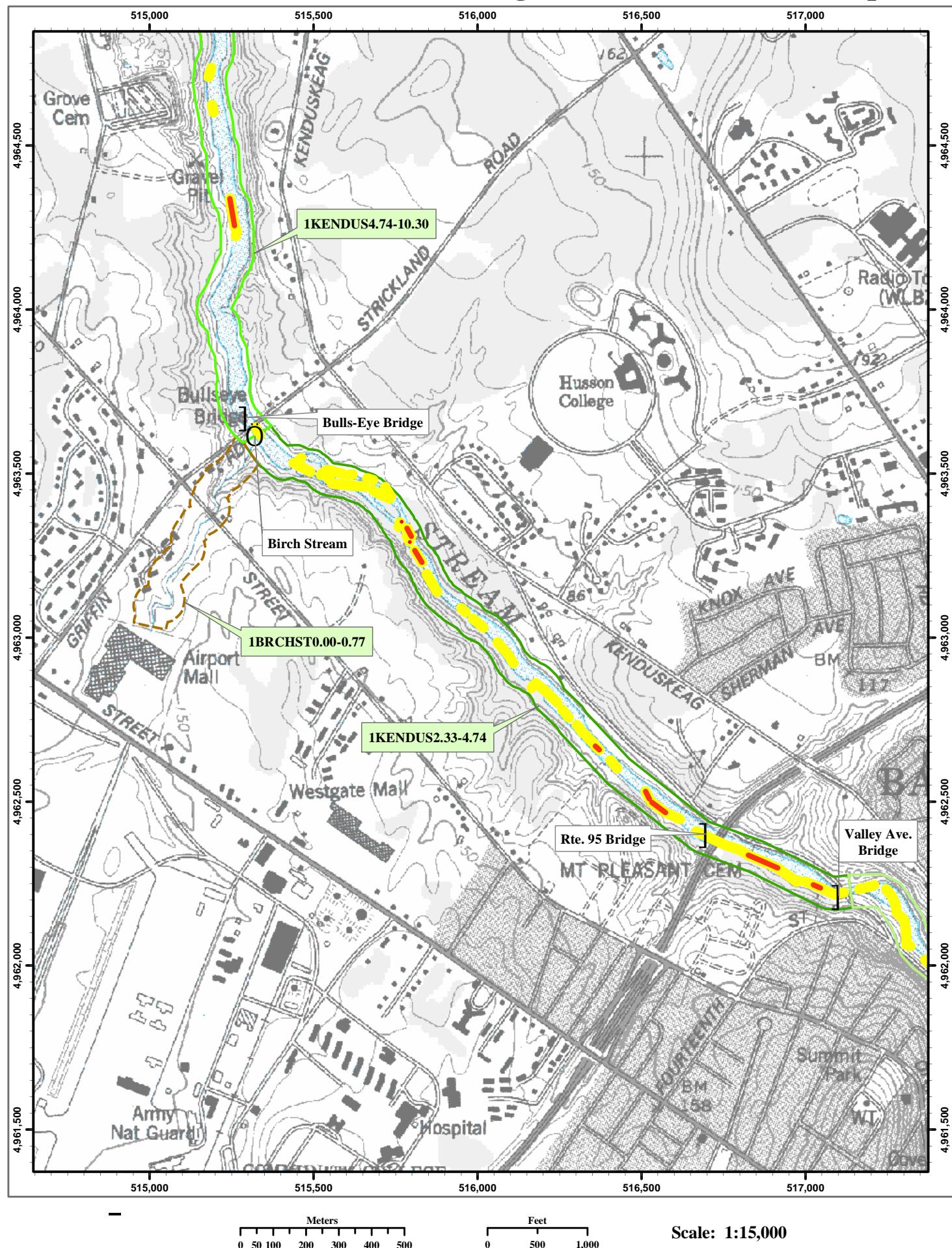
Feet
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Scale: 1:15,000

Penobscot River

Kenduskeag Stream

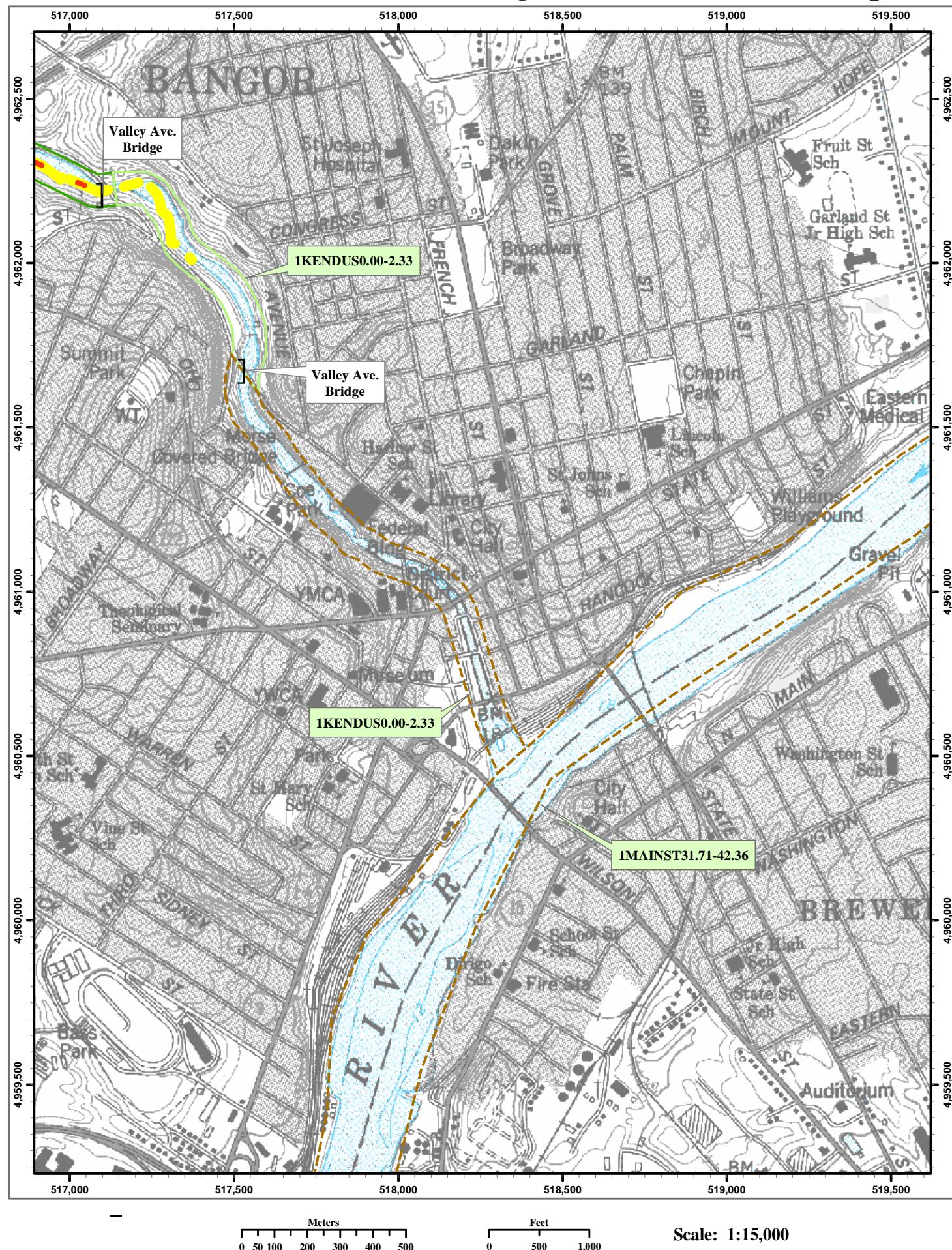
Map 40



Penobscot River

Kenduskeag Stream

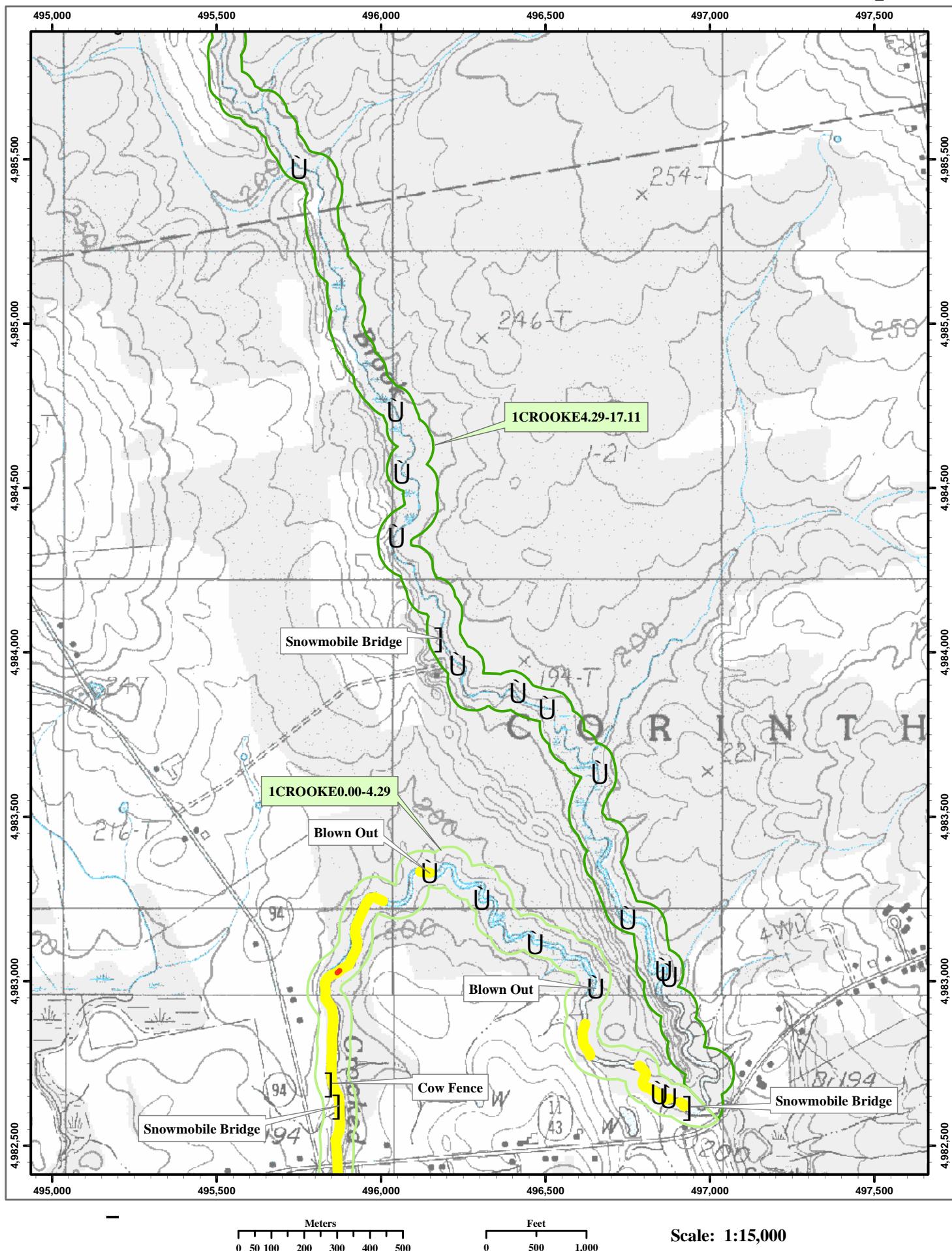
Map 41



Penobscot River

Crooked Brook

Map 42



Meters
0 50 100 200 300 400 500

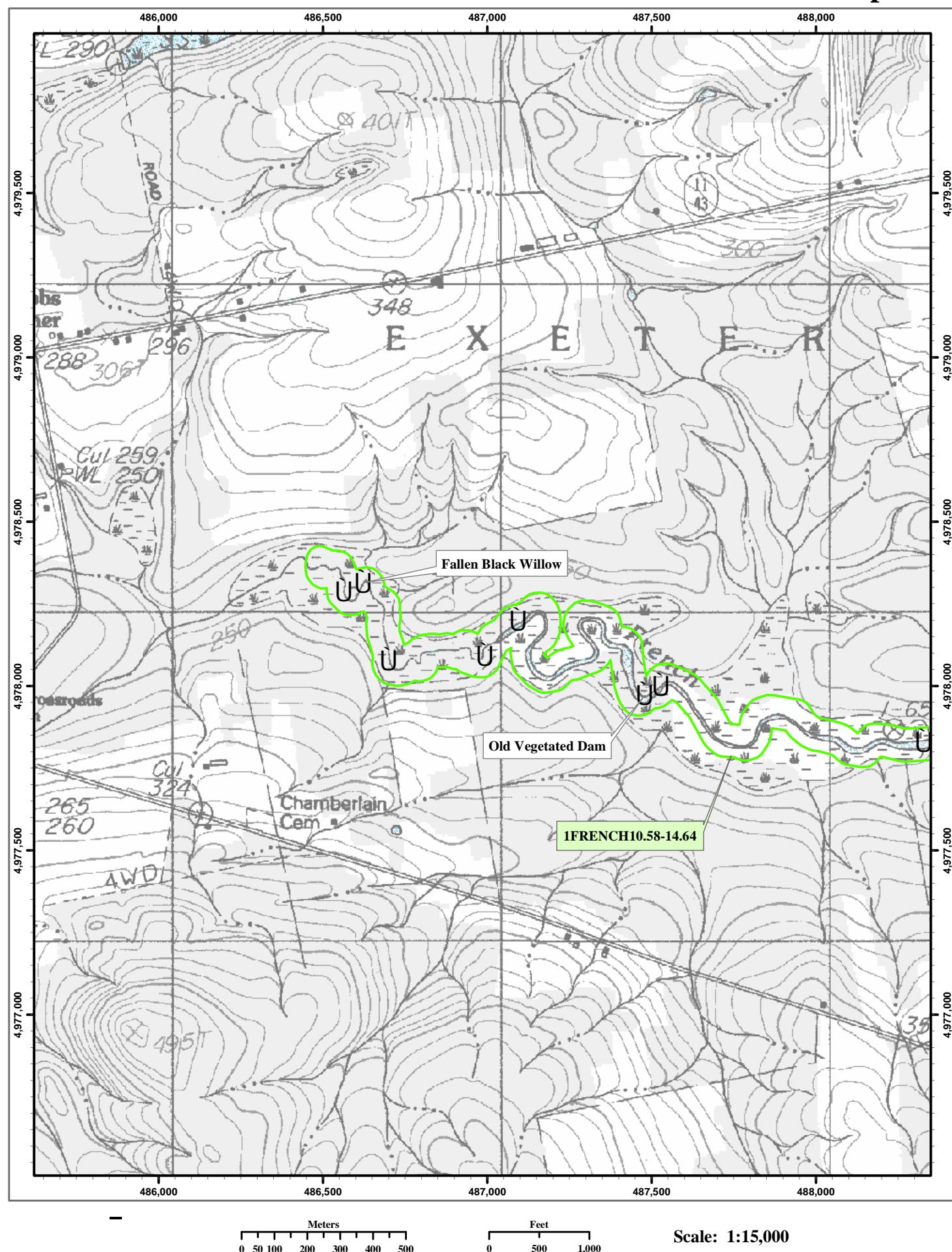
Feet
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Scale: 1:15,000

Penobscot River

French Stream

Map 43



Meters
0 50 100 200 300 400 500

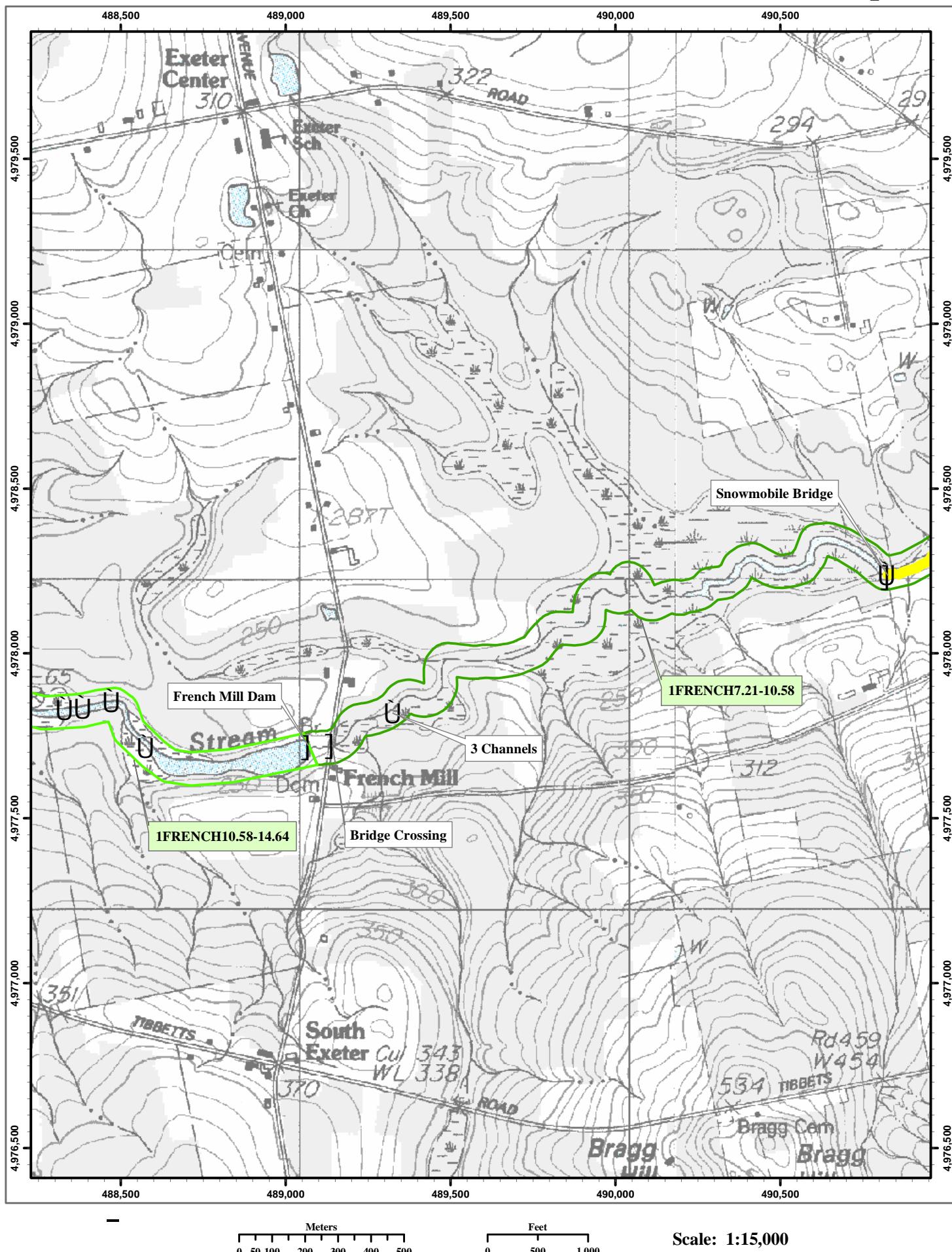
Feet
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Scale: 1:15,000

Penobscot River

French Stream

Map 44



Meters
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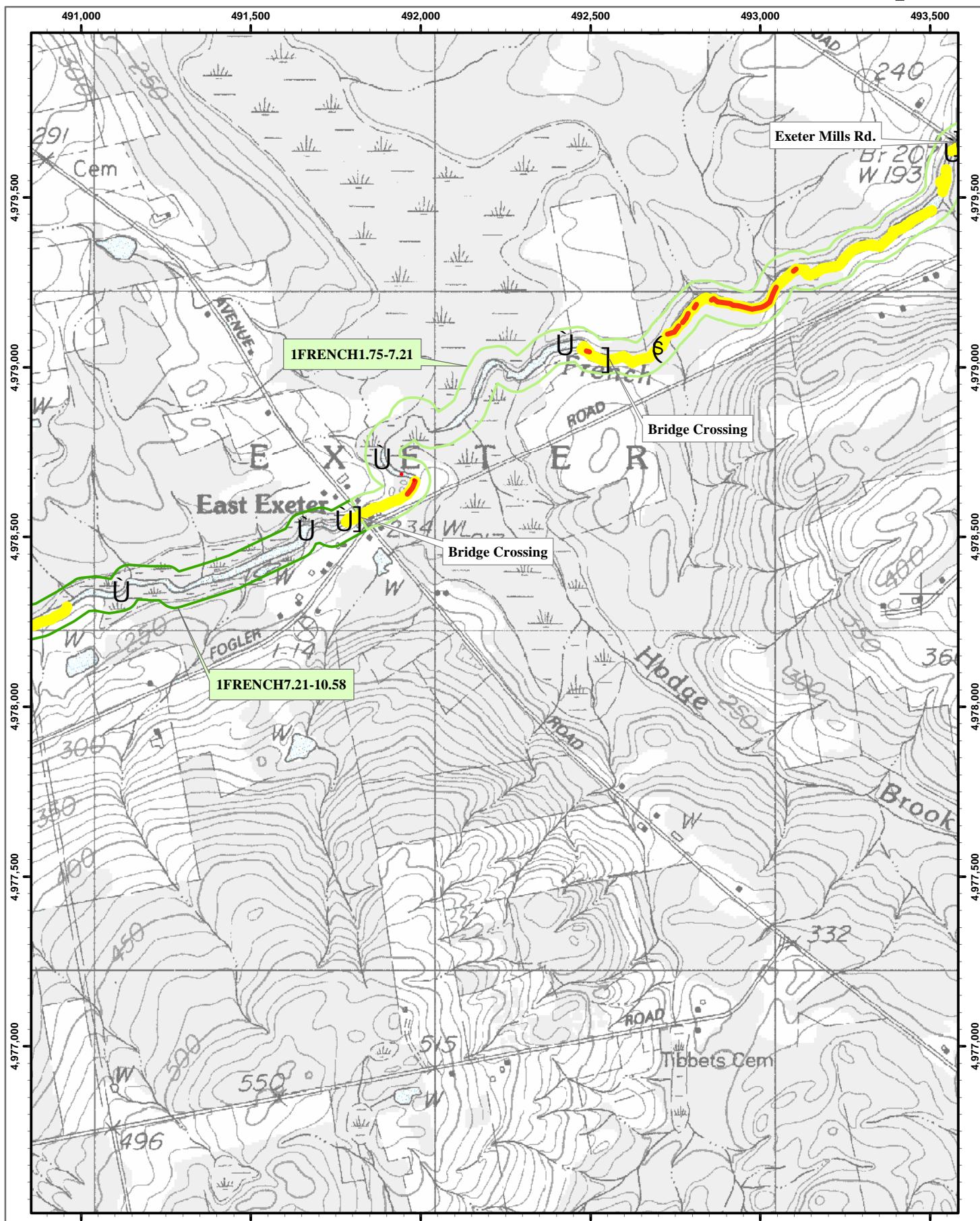
Feet
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Scale: 1:15,000

Penobscot River

French Stream

Map 45



Meters
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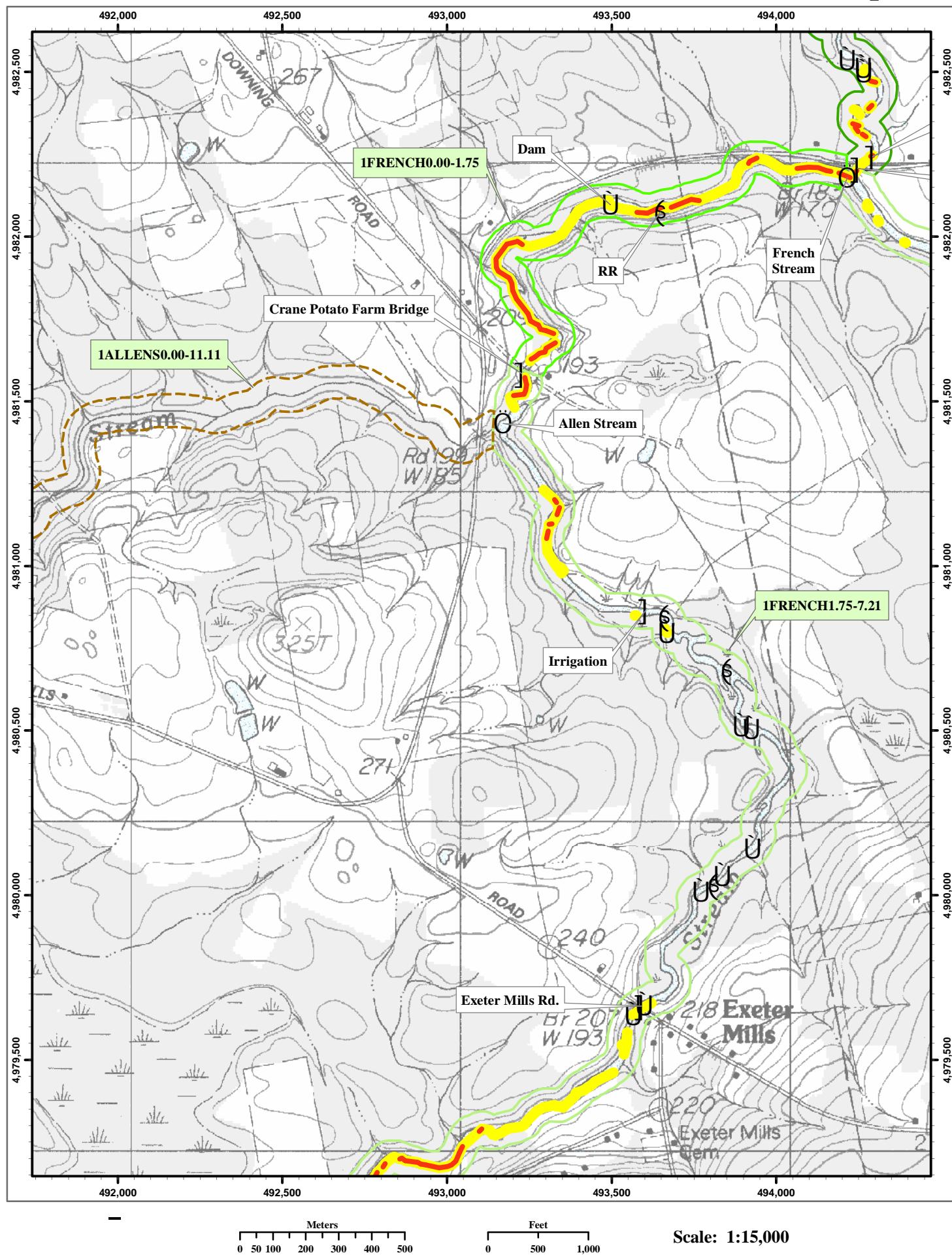
Feet
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Scale: 1:15,000

Penobscot River

French Stream

Map 46



Meters
0 50 100 200 300 400 500

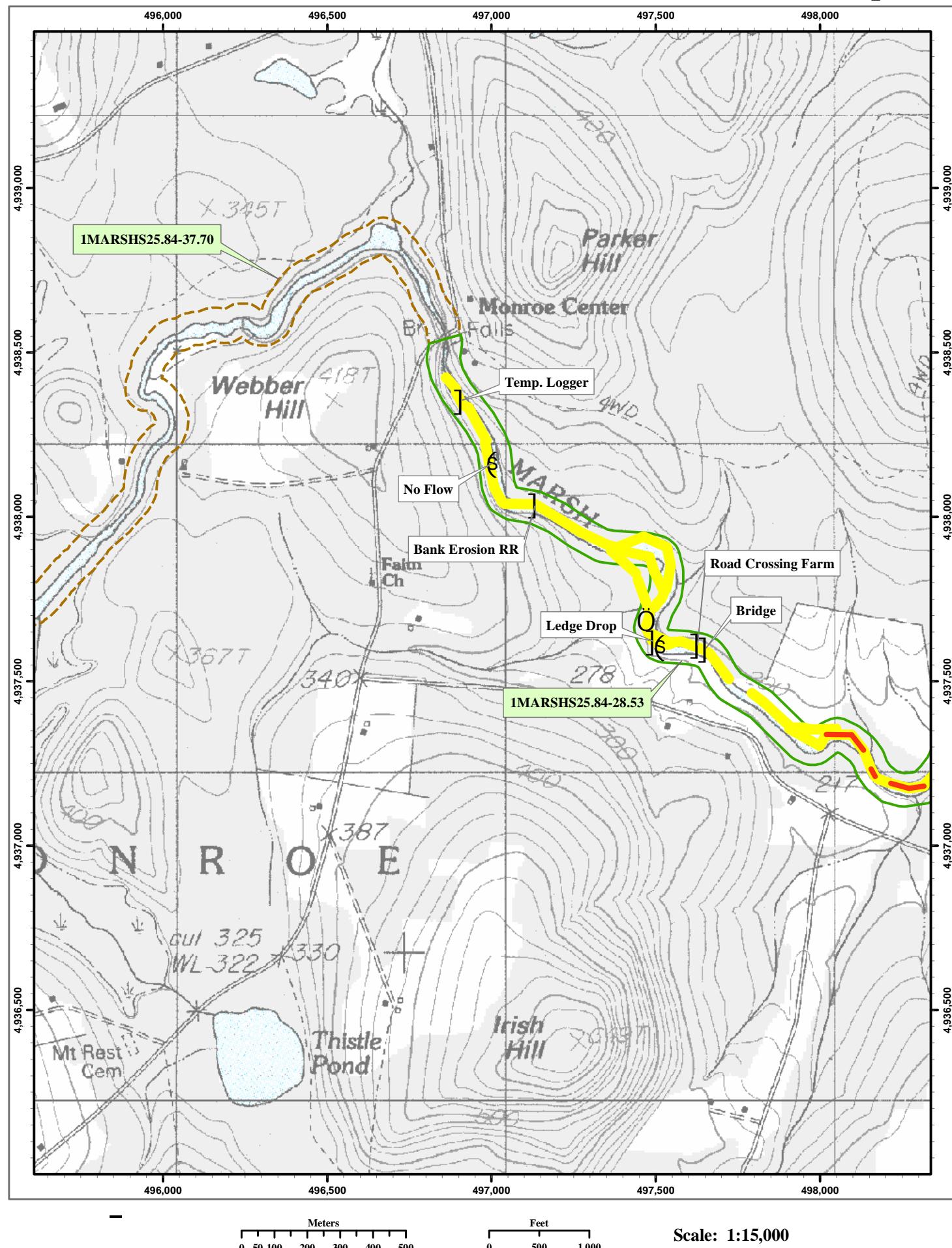
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Marsh Stream

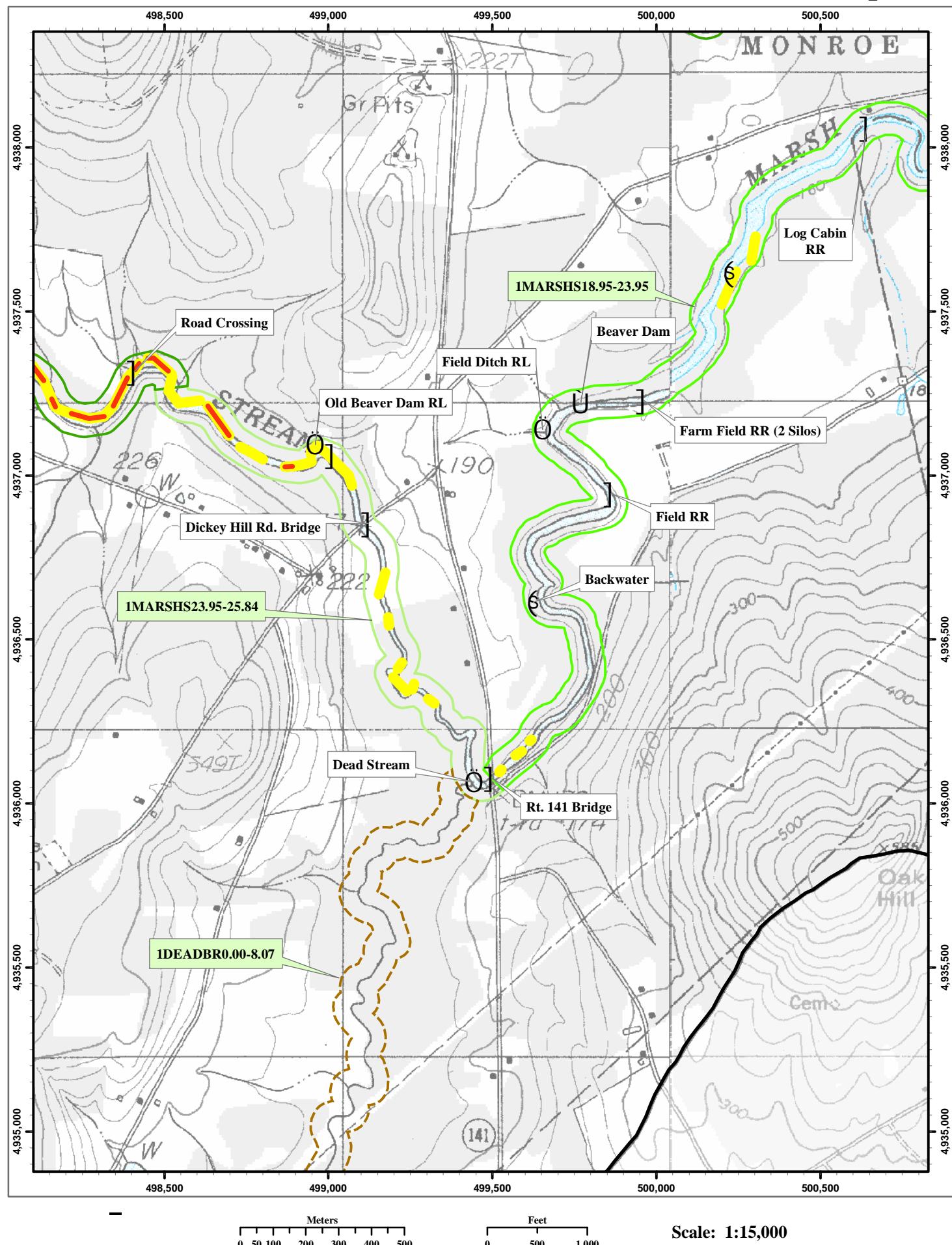
Map 47



Penobscot River

Marsh Stream

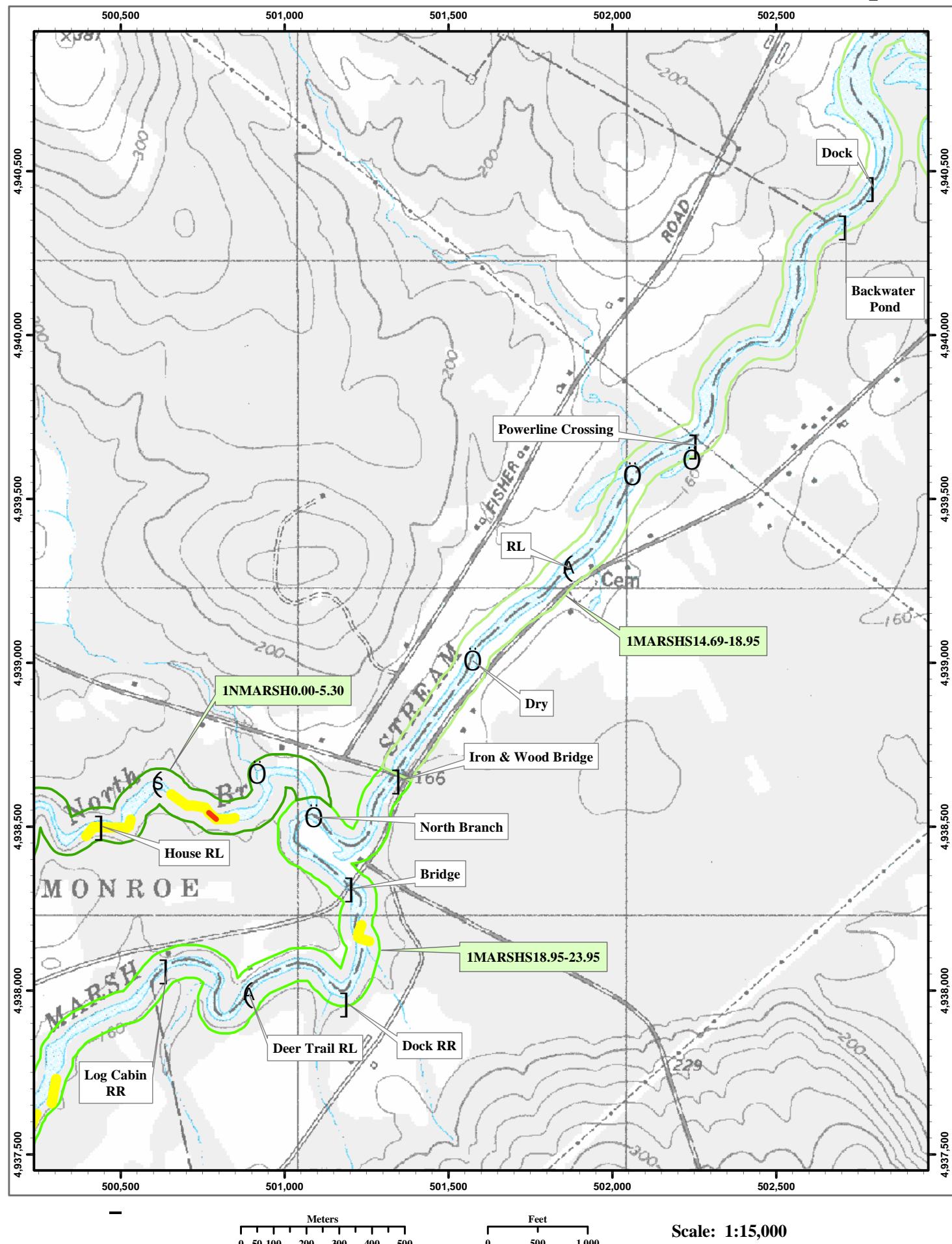
Map 48



Penobscot River

Marsh Stream

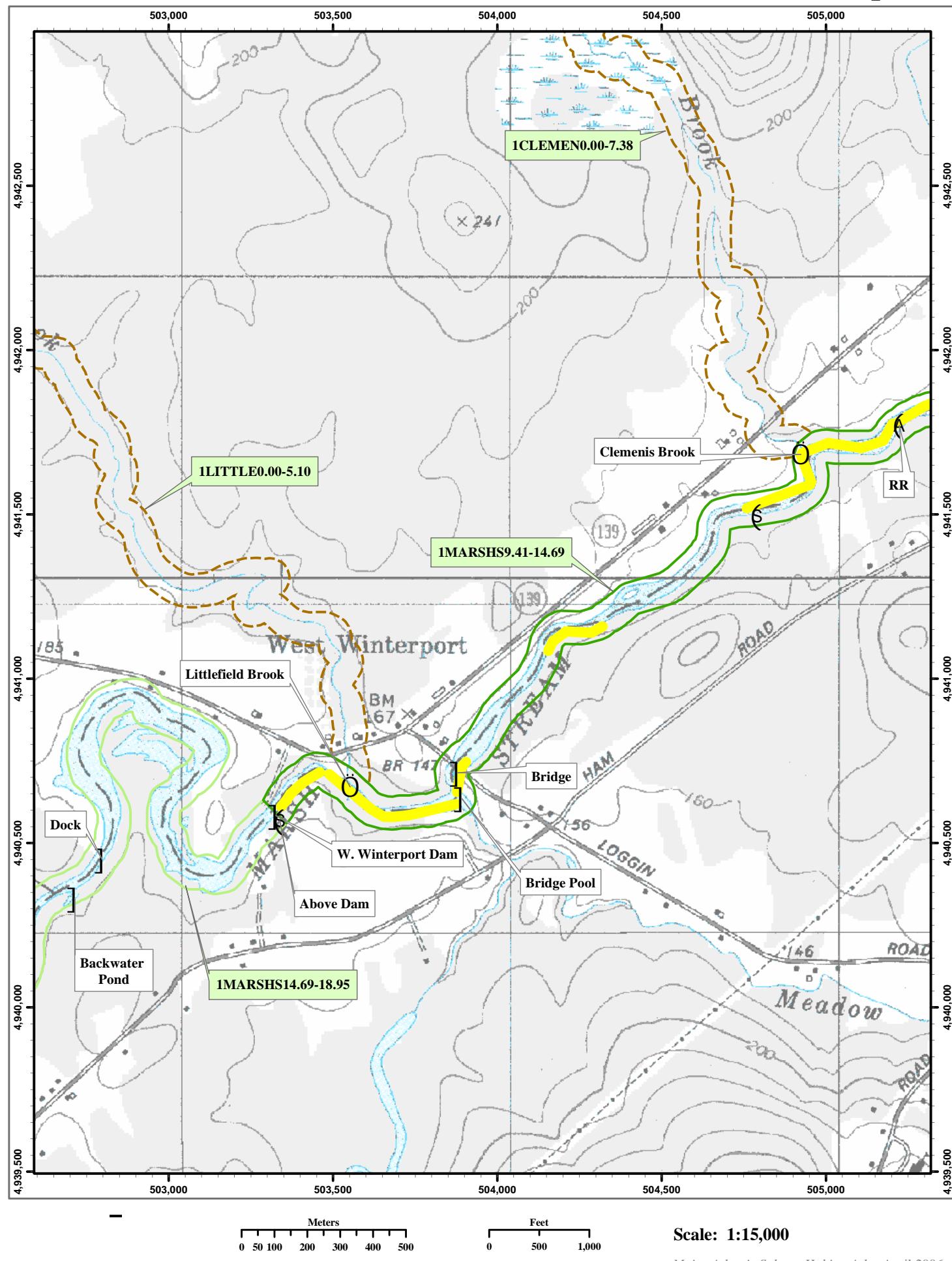
Map 49



Penobscot River

Marsh Stream

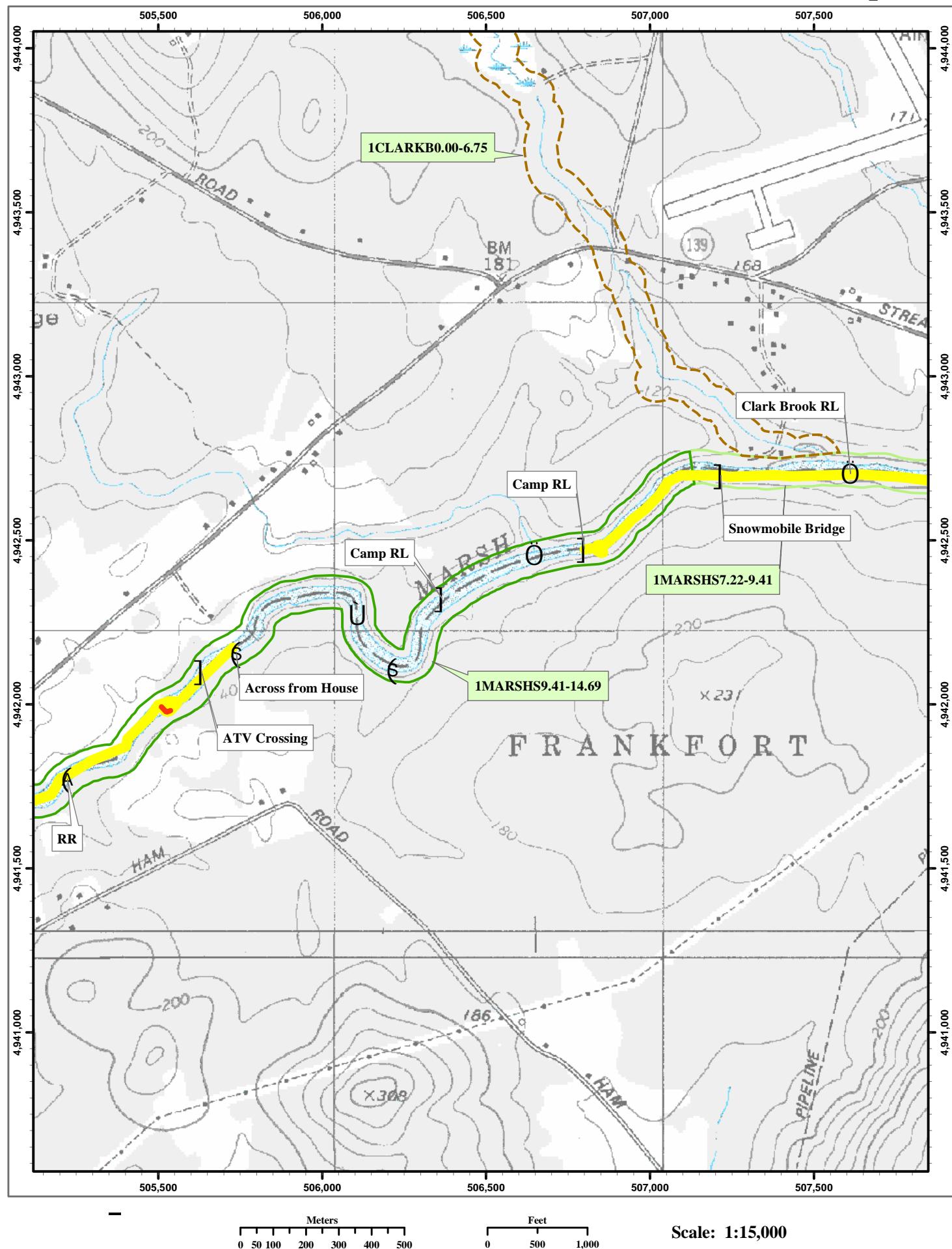
Map 50



Penobscot River

Marsh Stream

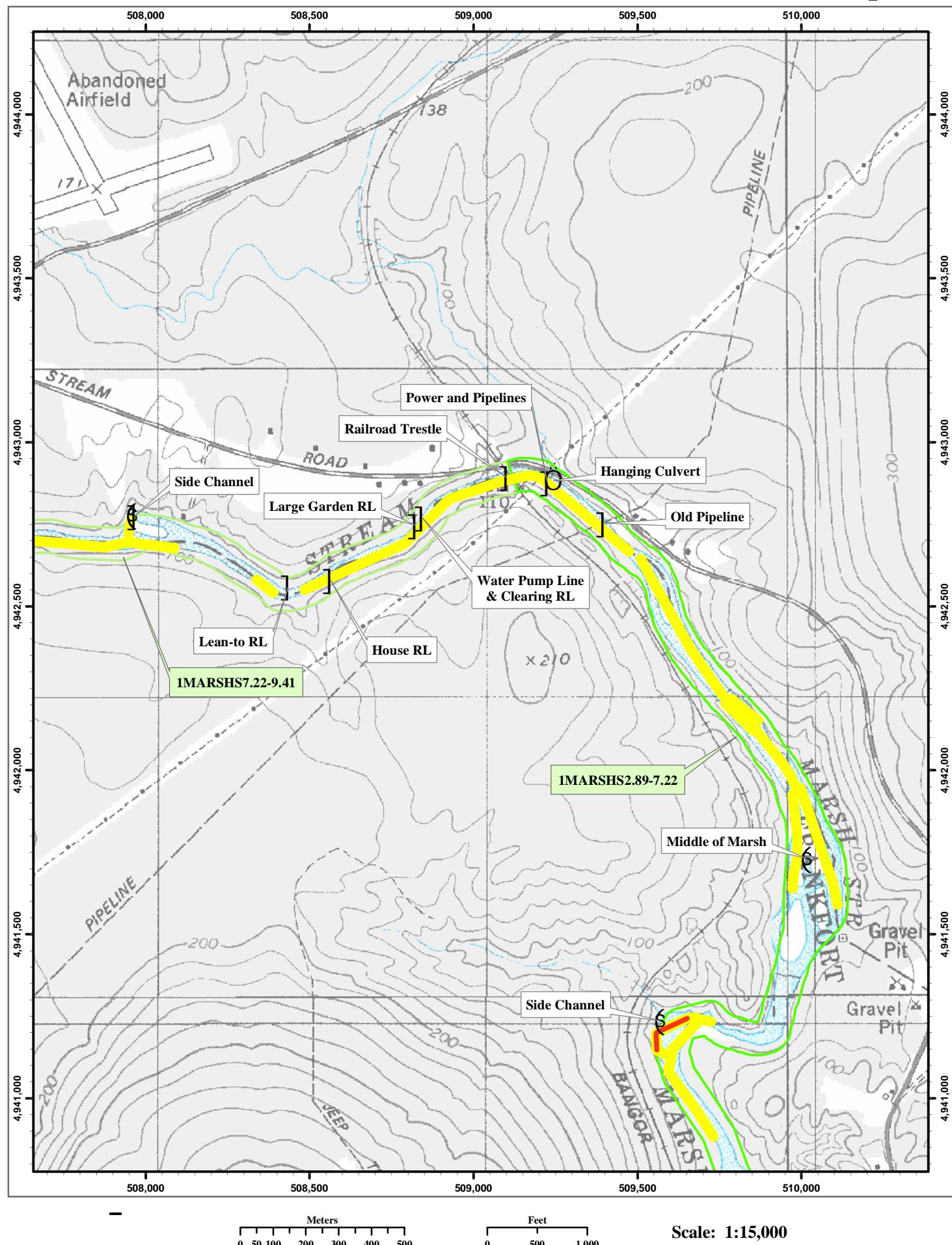
Map 51



Penobscot River

Marsh Stream

Map 52



Meters
0 50 100 150 200 300 400 500

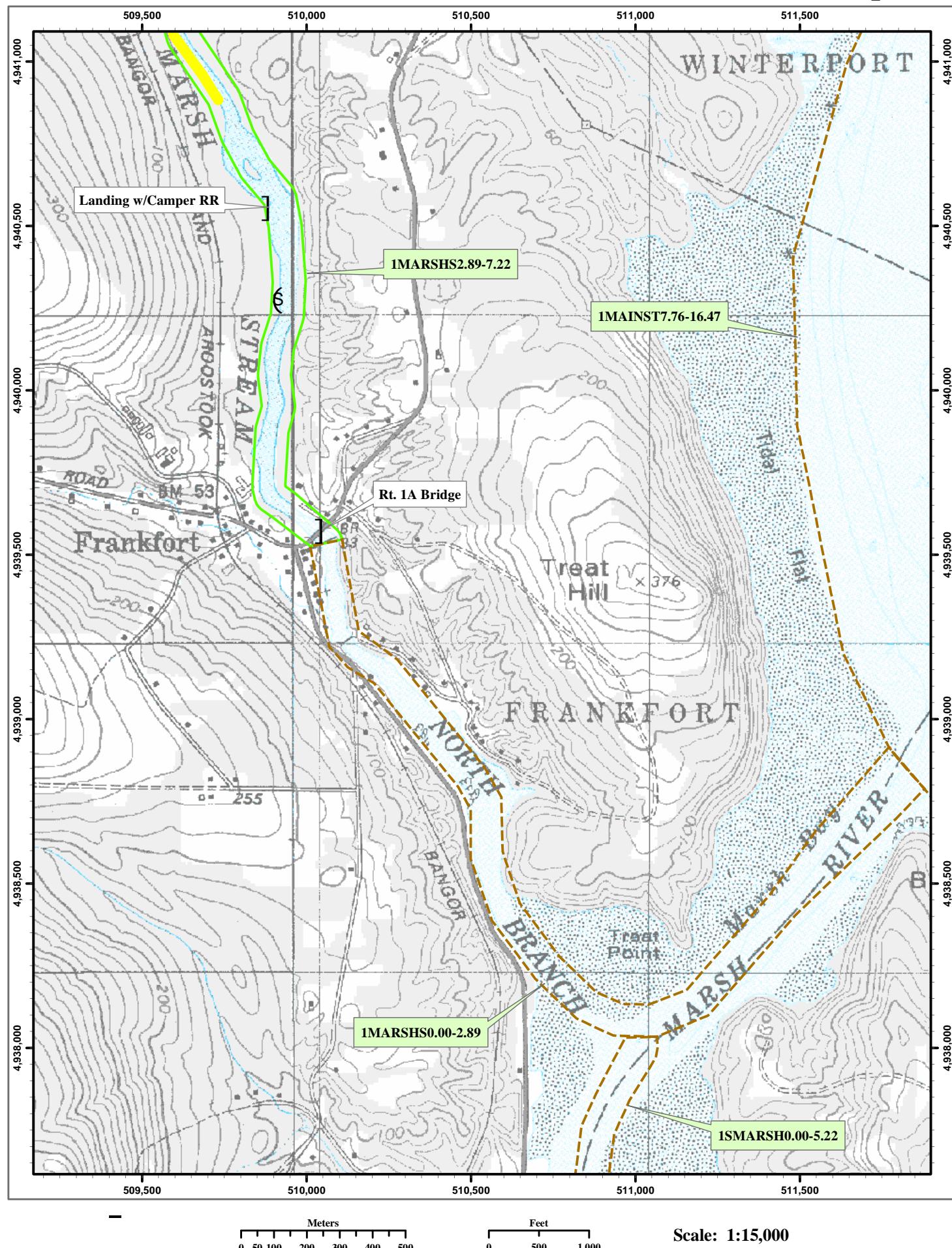
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Marsh Stream

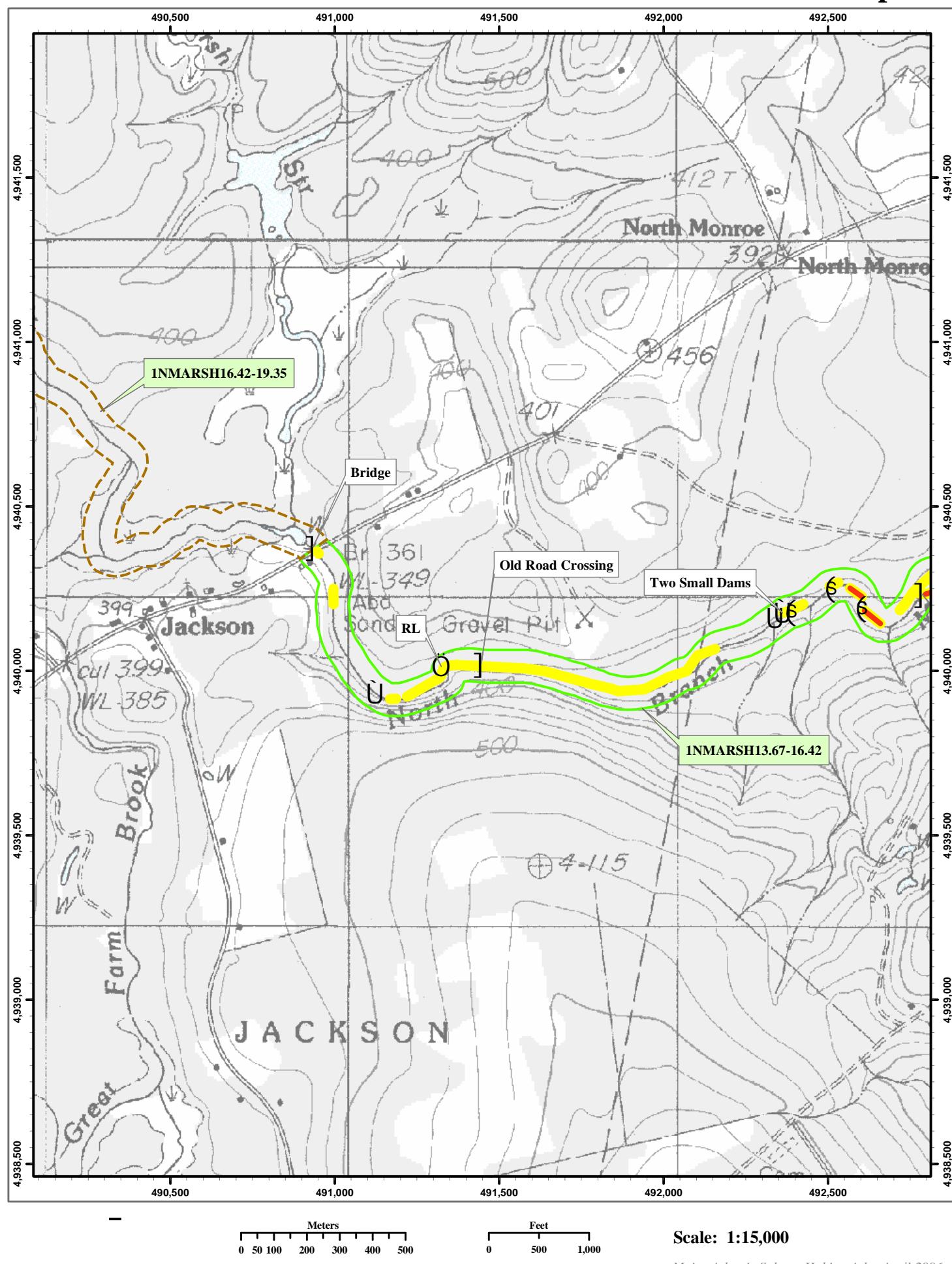
Map 53



Penobscot River

North Branch Marsh Stream

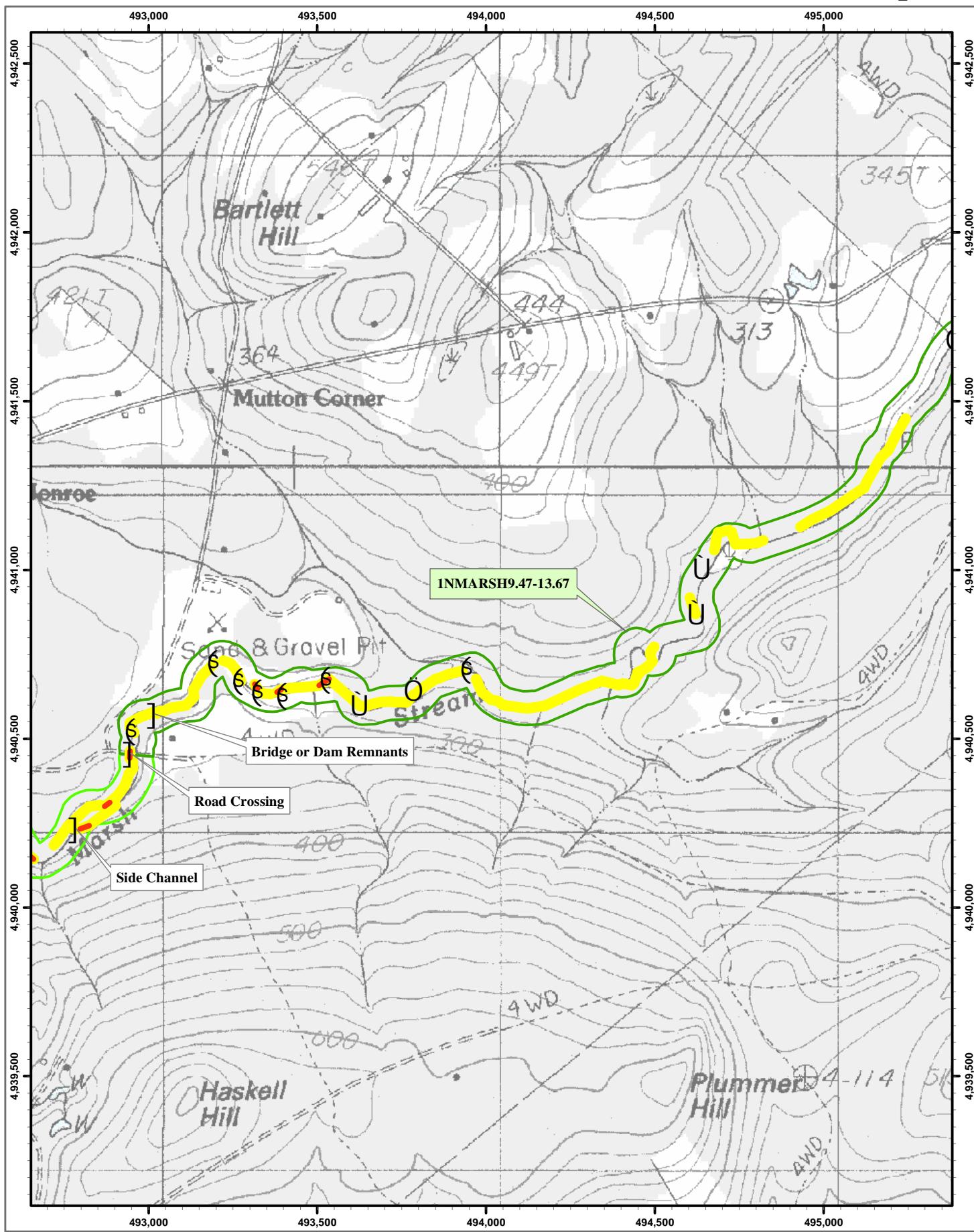
Map 54



Penobscot River

North Branch Marsh Stream

Map 55



Meters
0 50 100 200 300 400 500

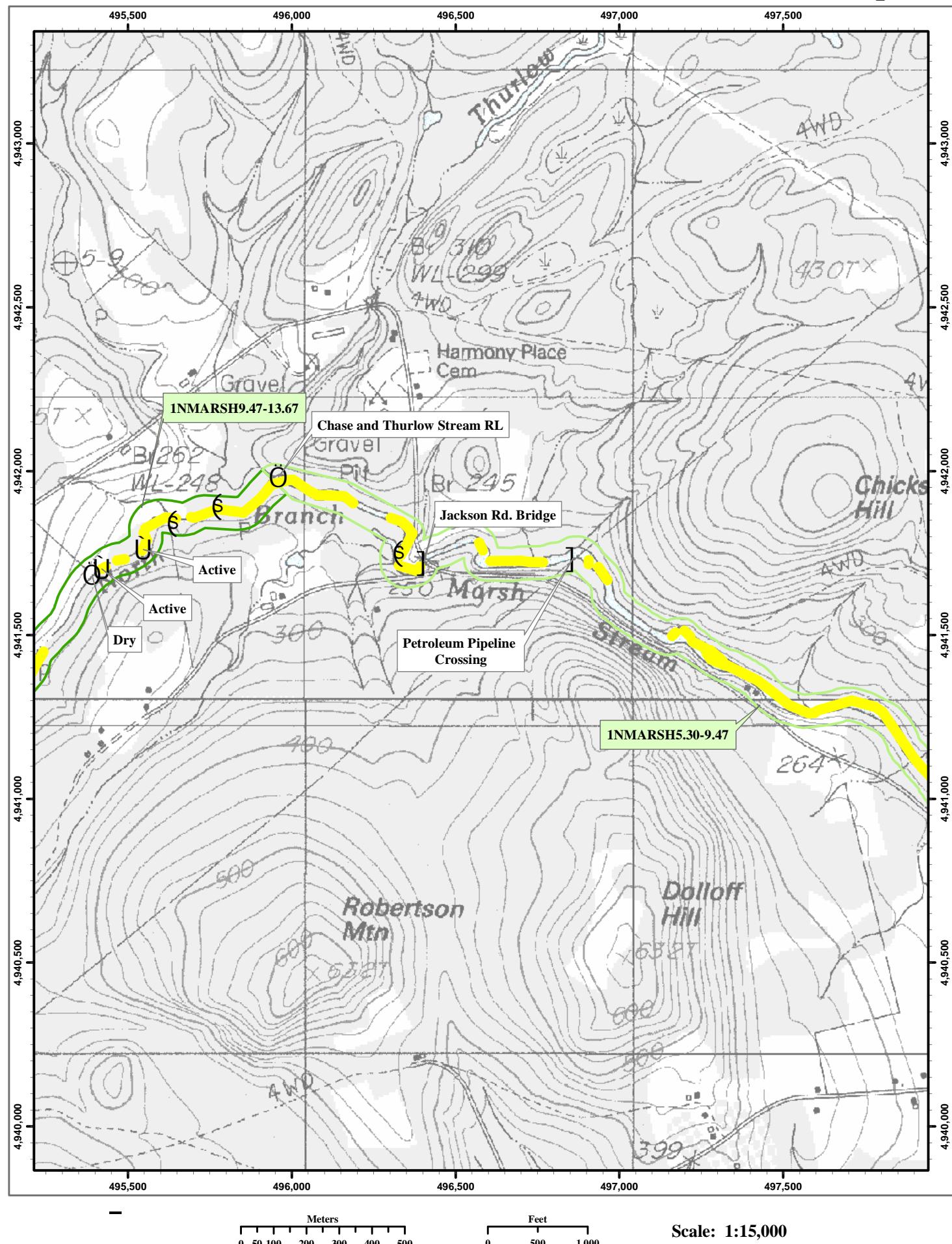
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

North Branch Marsh Stream

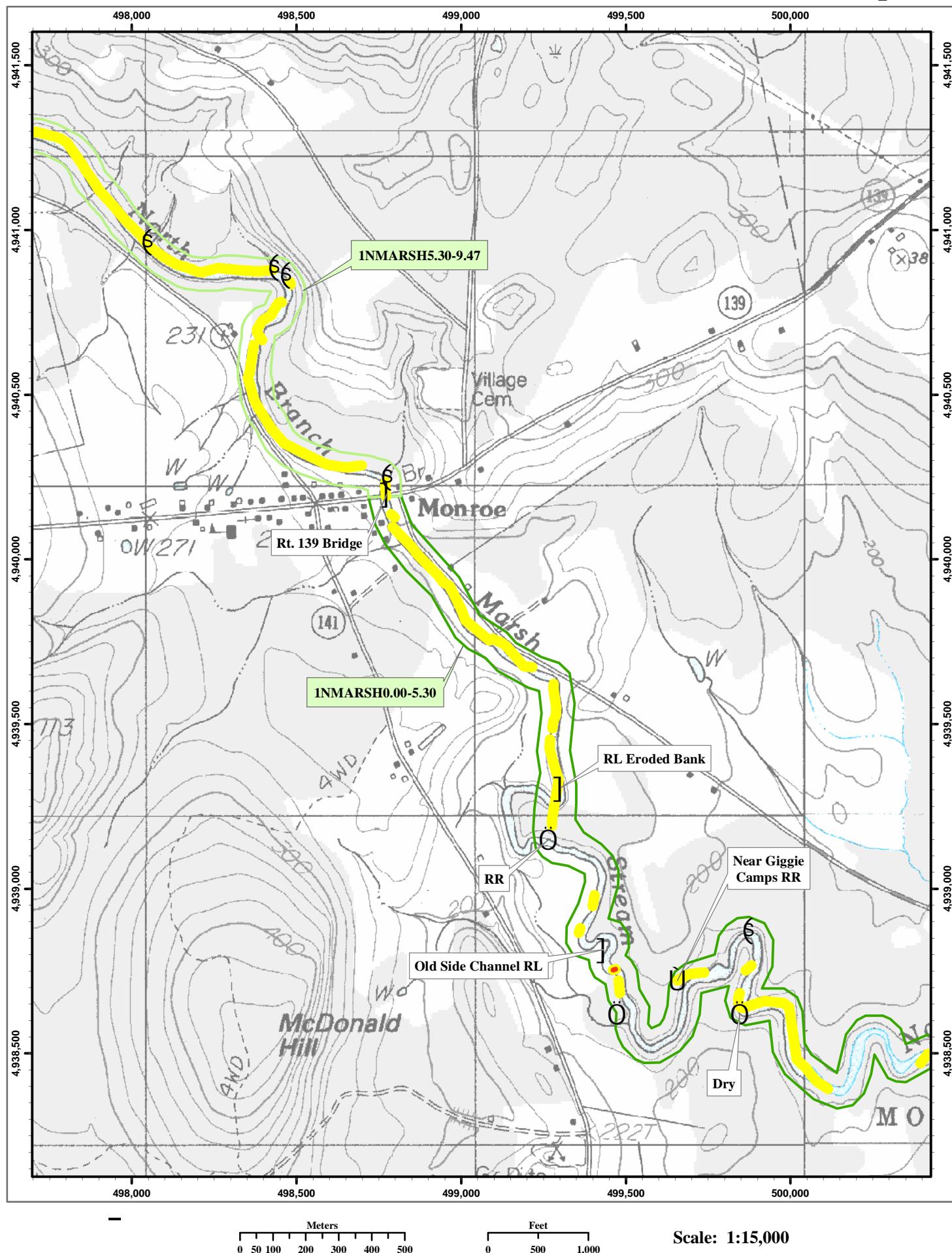
Map 56



Penobscot River

North Branch Marsh Stream

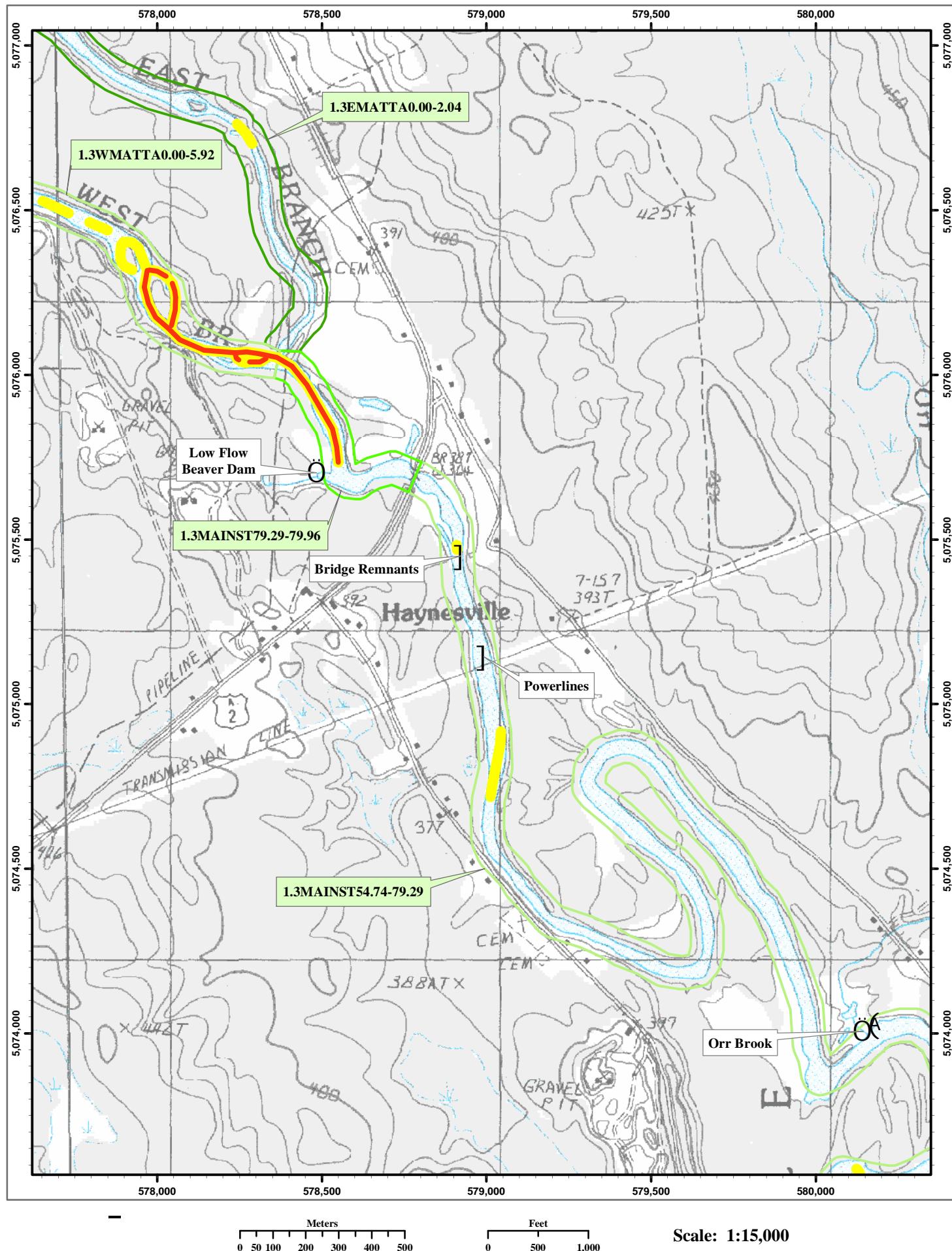
Map 57



Penobscot River

Mattawamkeag River

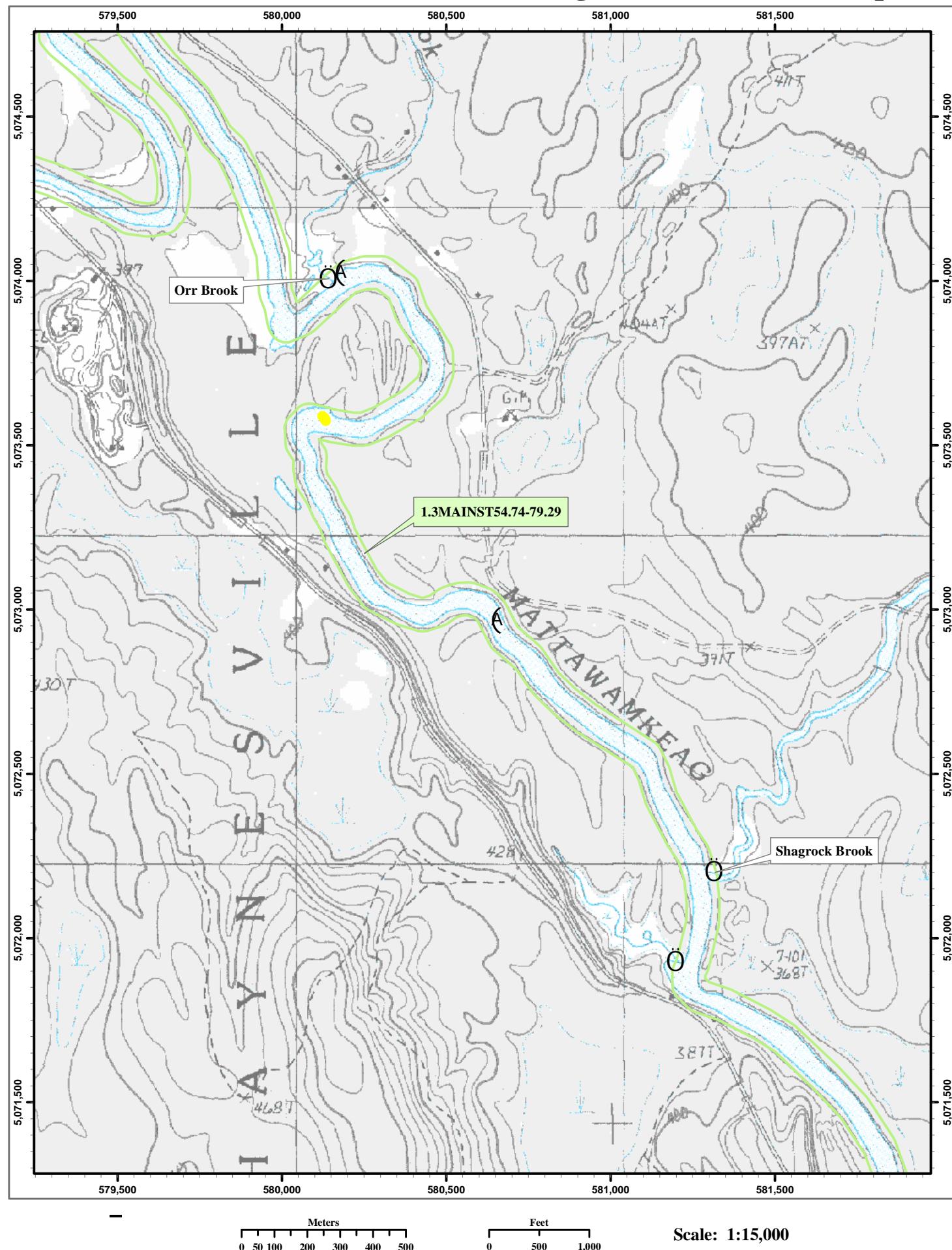
Map 58



Penobscot River

Mattawamkeag River

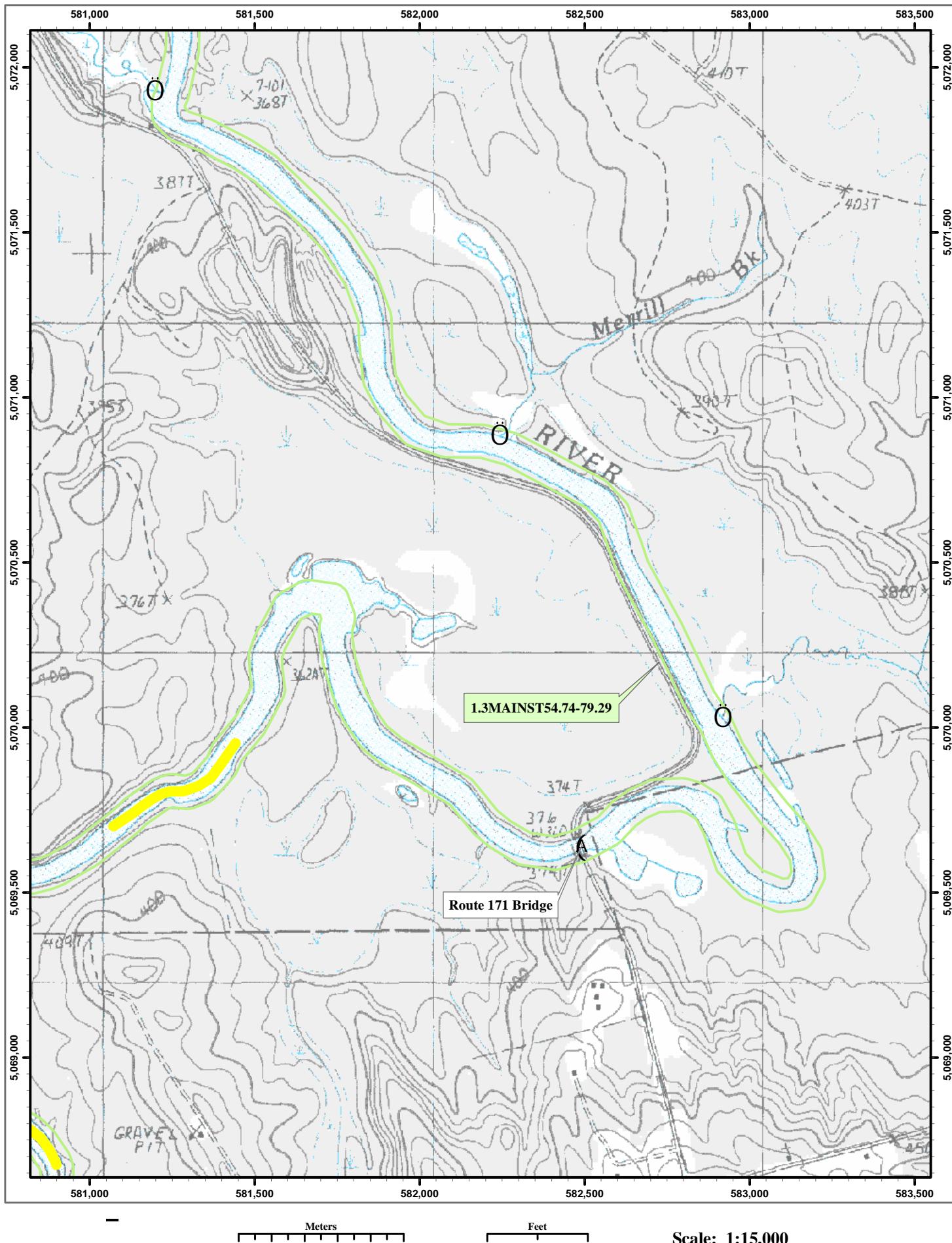
Map 59



Penobscot River

Mattawamkeag River

Map 60

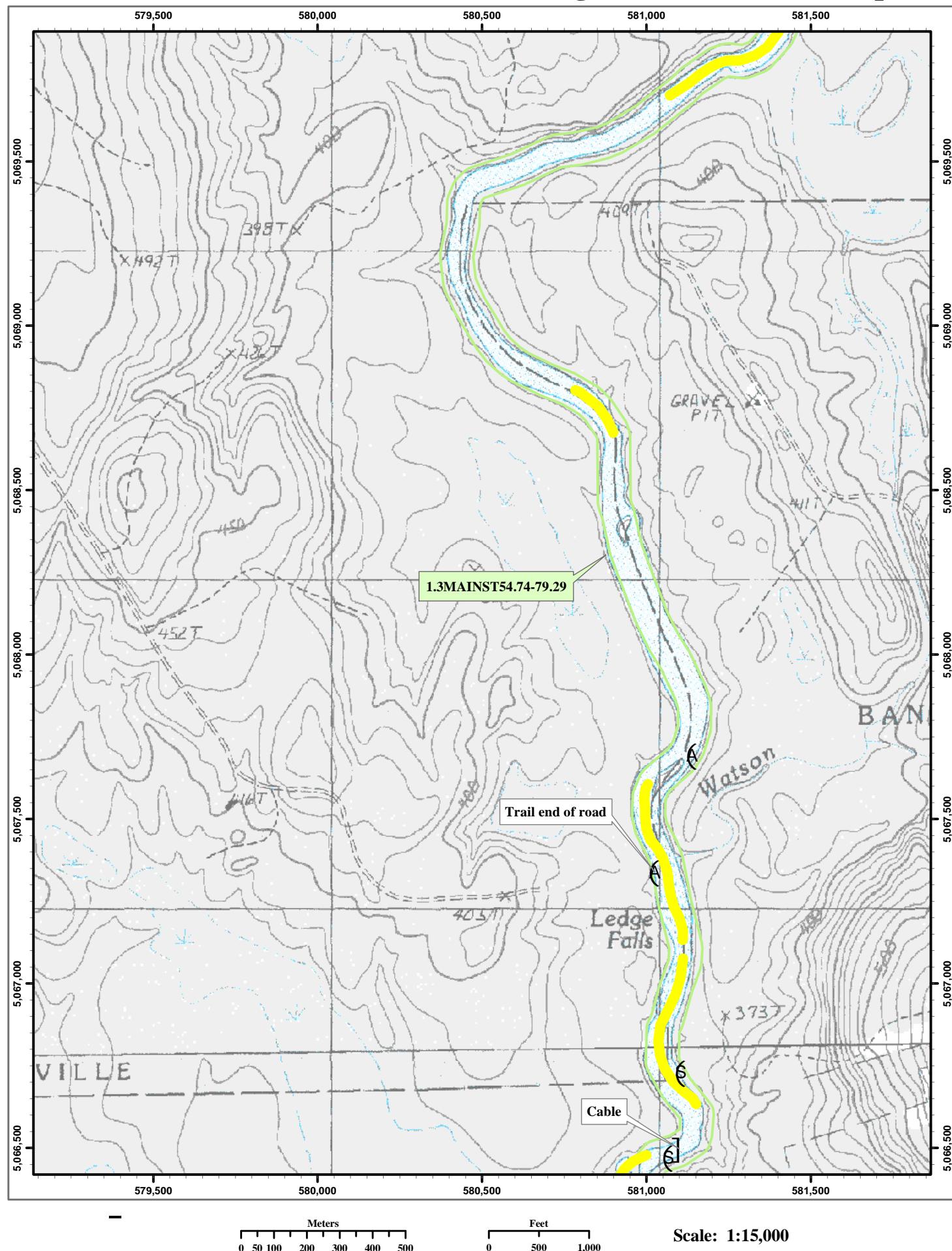


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Penobscot River

Mattawamkeag River

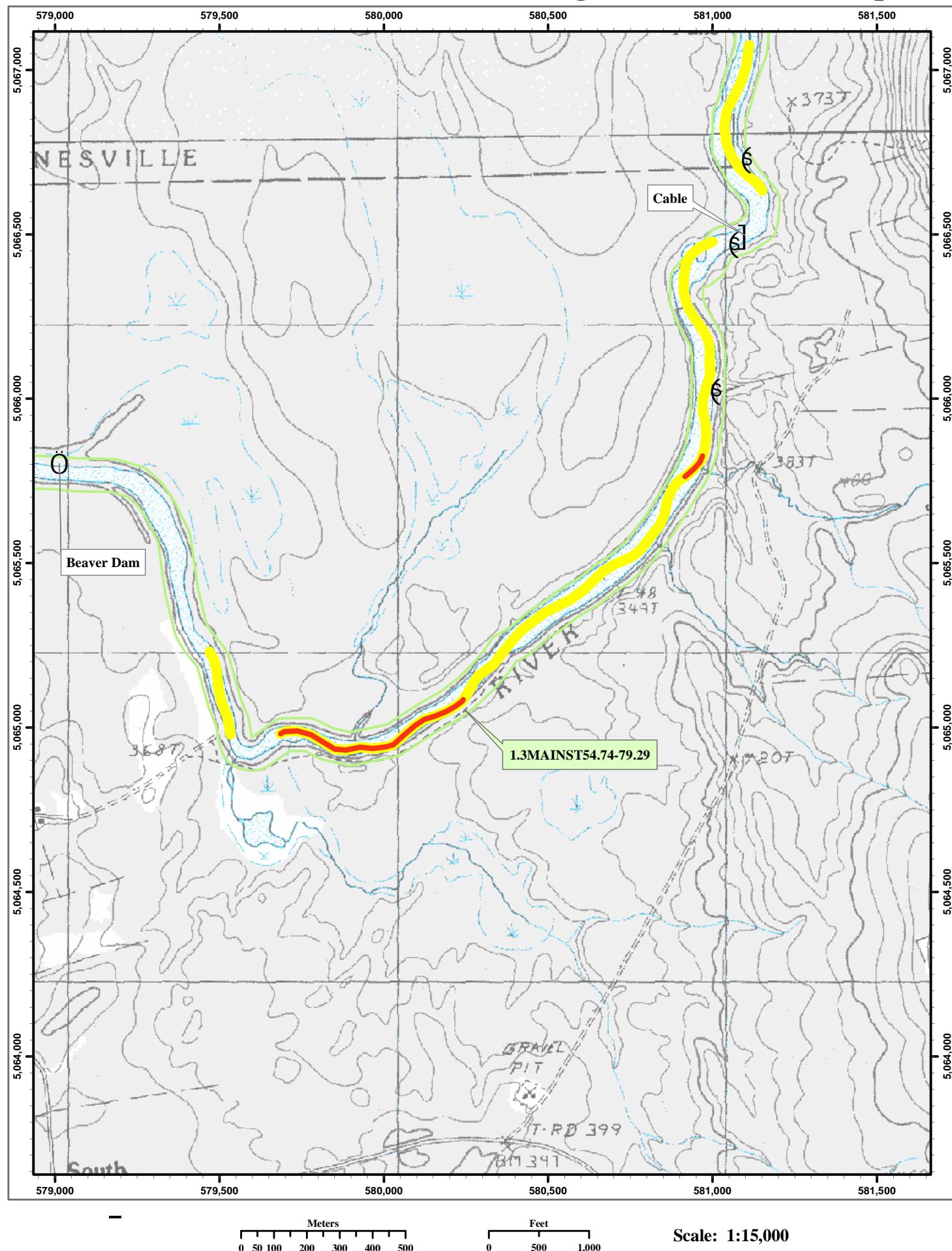
Map 61



Penobscot River

Mattawamkeag River

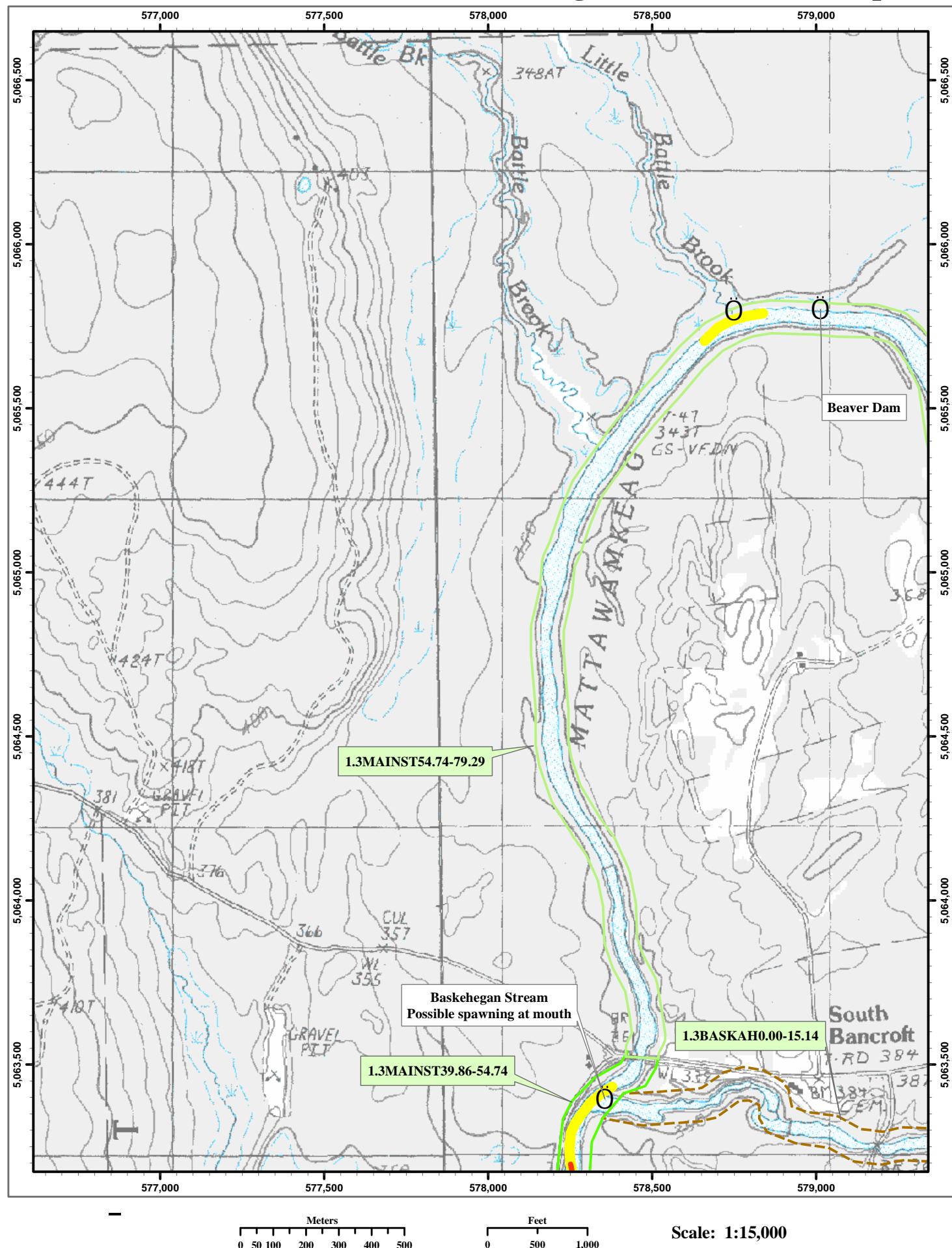
Map 62



Penobscot River

Mattawamkeag River

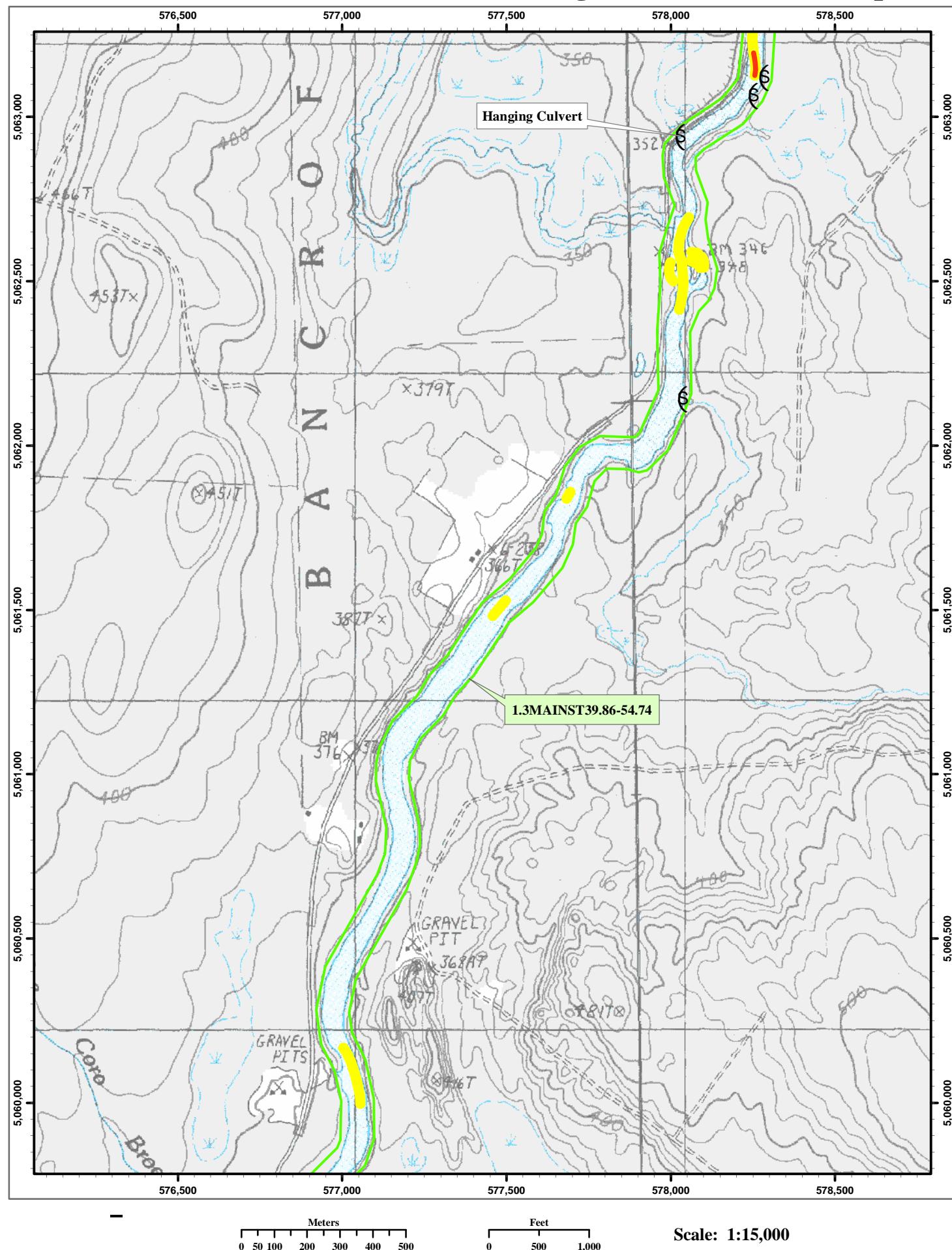
Map 63



Penobscot River

Mattawamkeag River

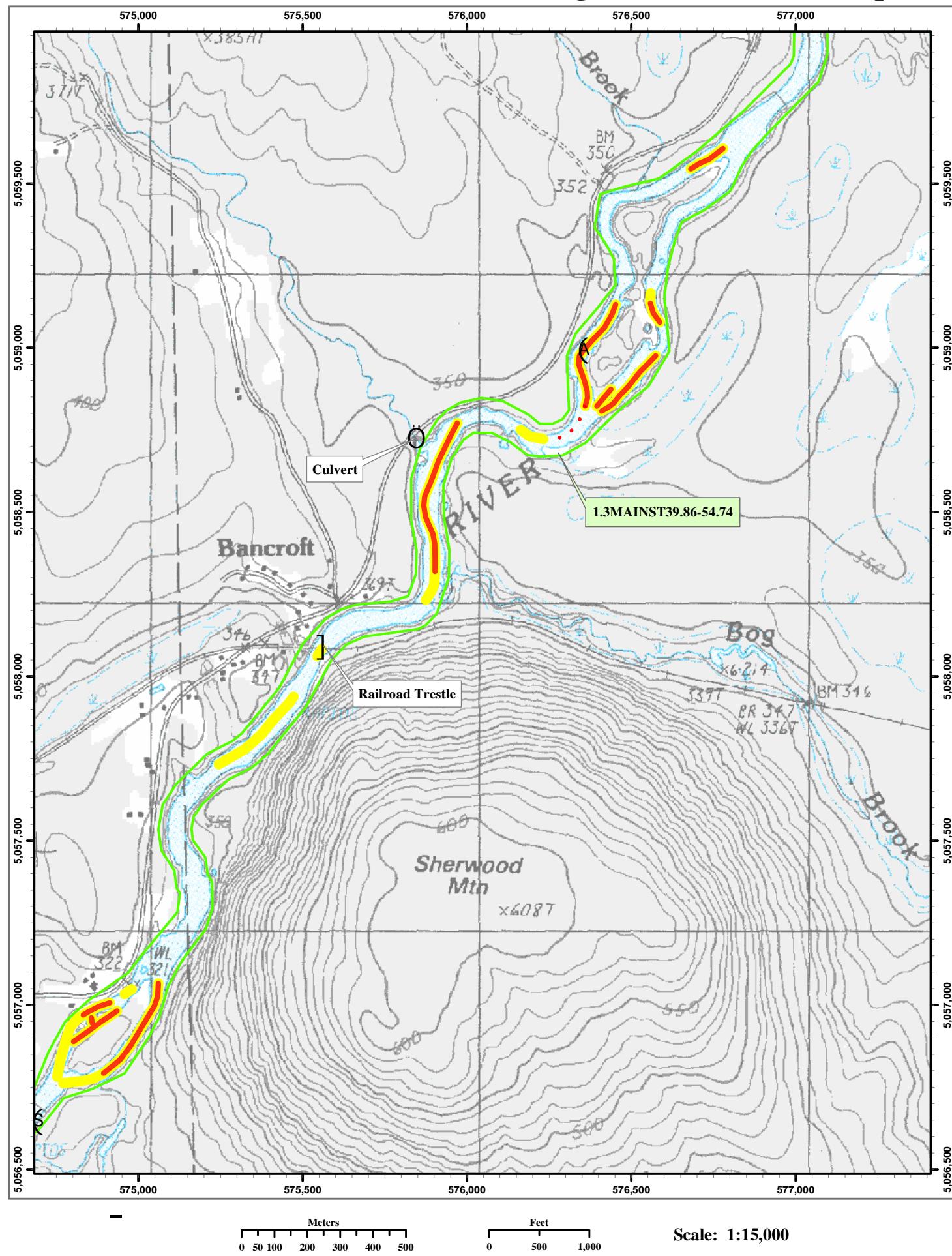
Map 64



Penobscot River

Mattawamkeag River

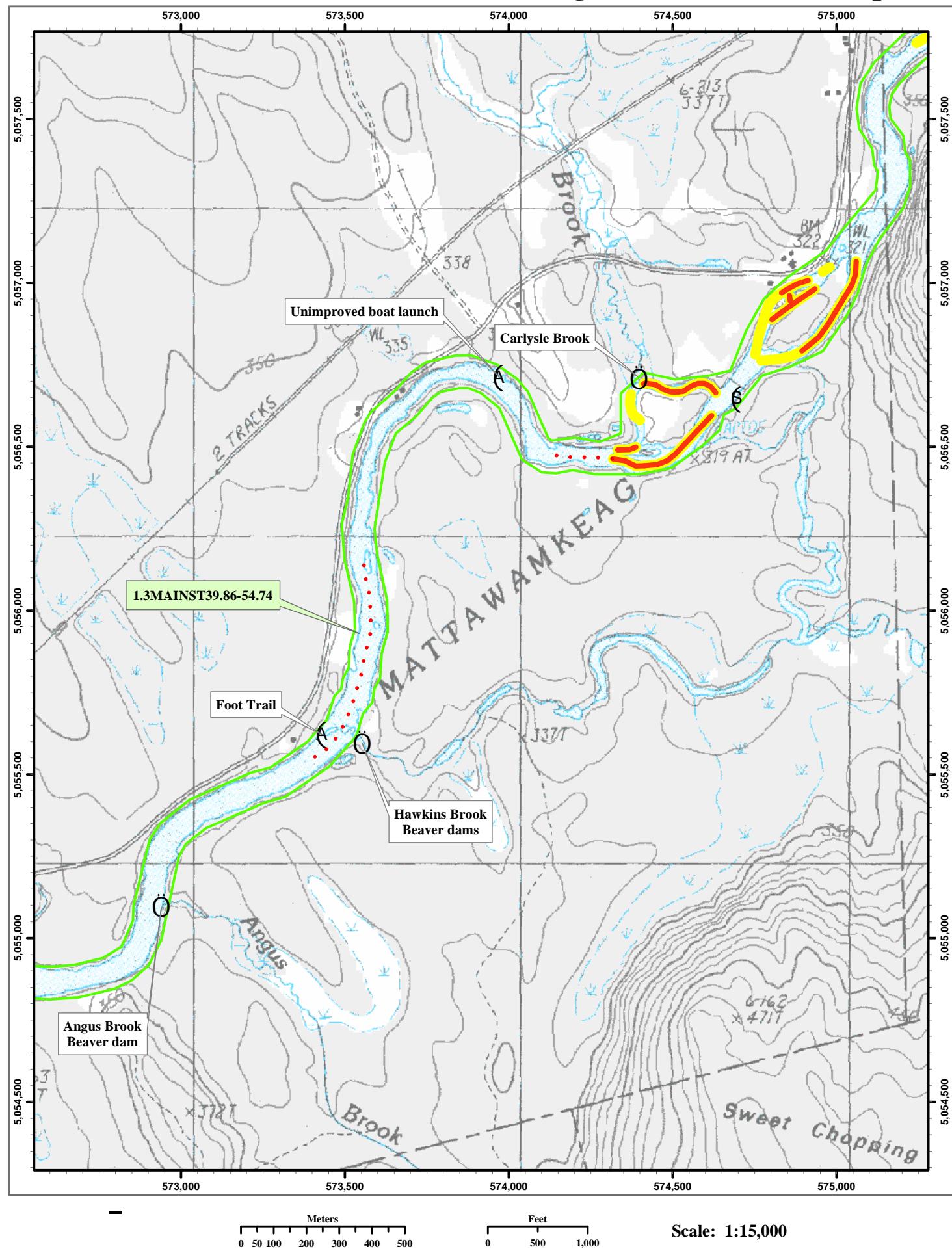
Map 65



Penobscot River

Mattawamkeag River

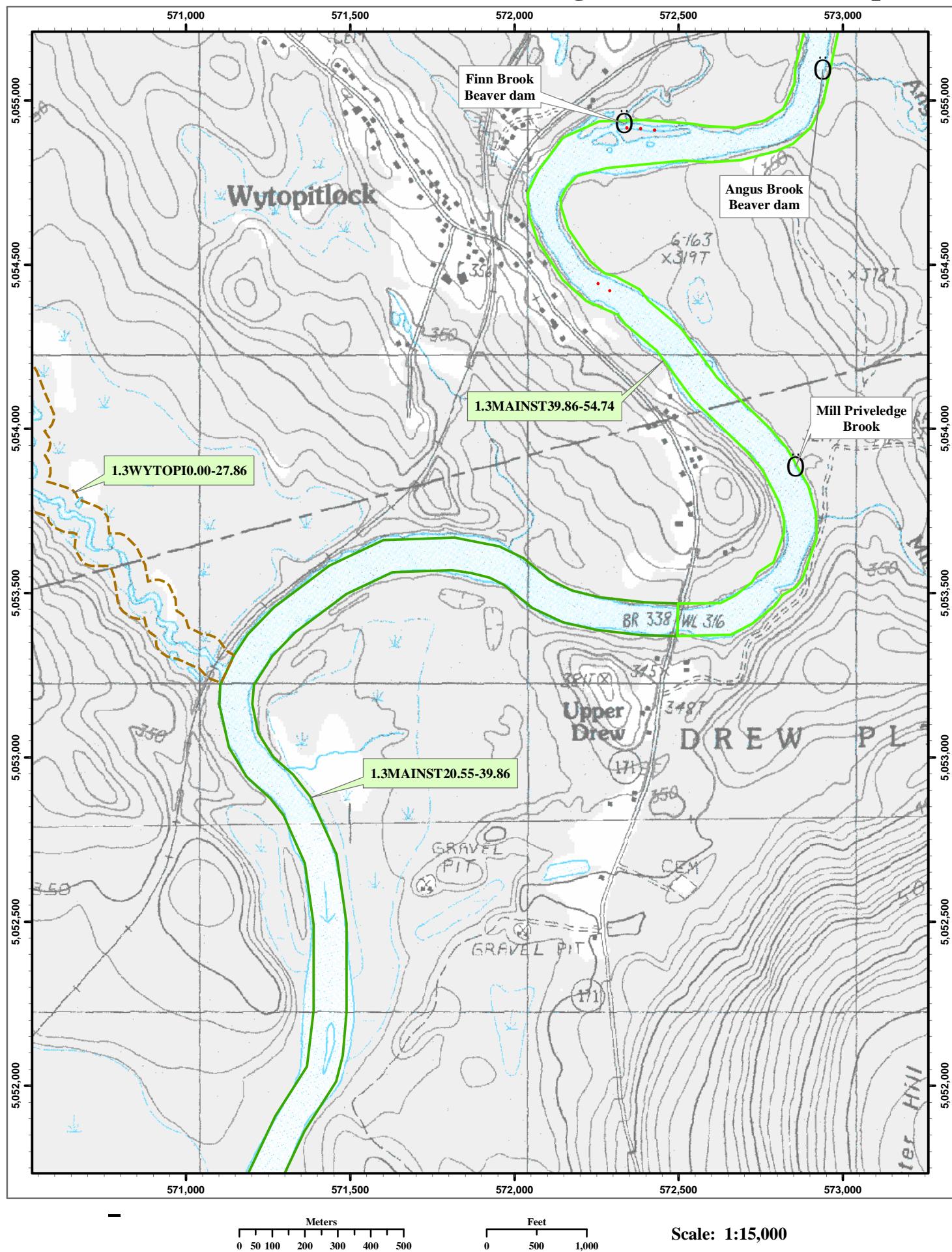
Map 66



Penobscot River

Mattawamkeag River

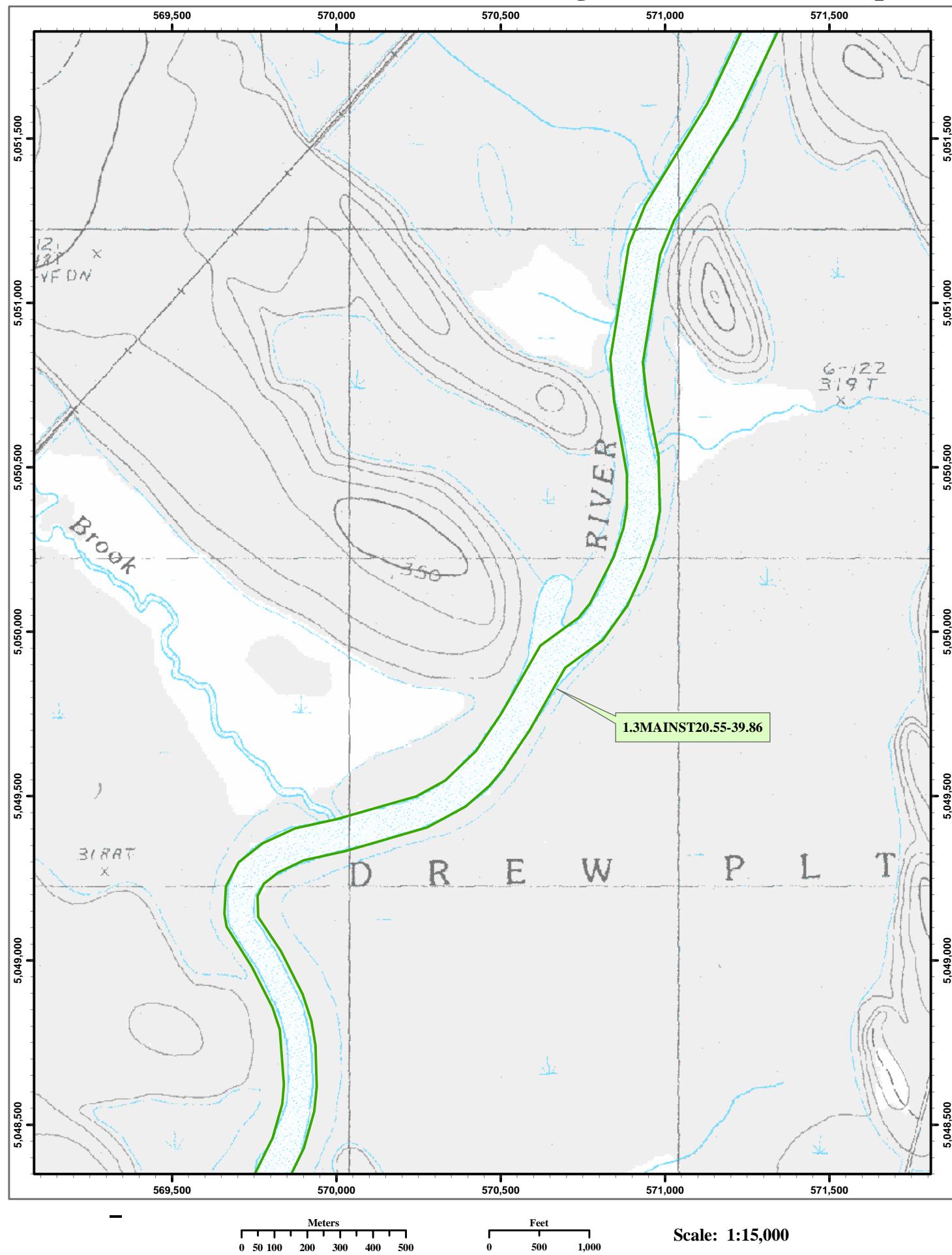
Map 67



Penobscot River

Mattawamkeag River

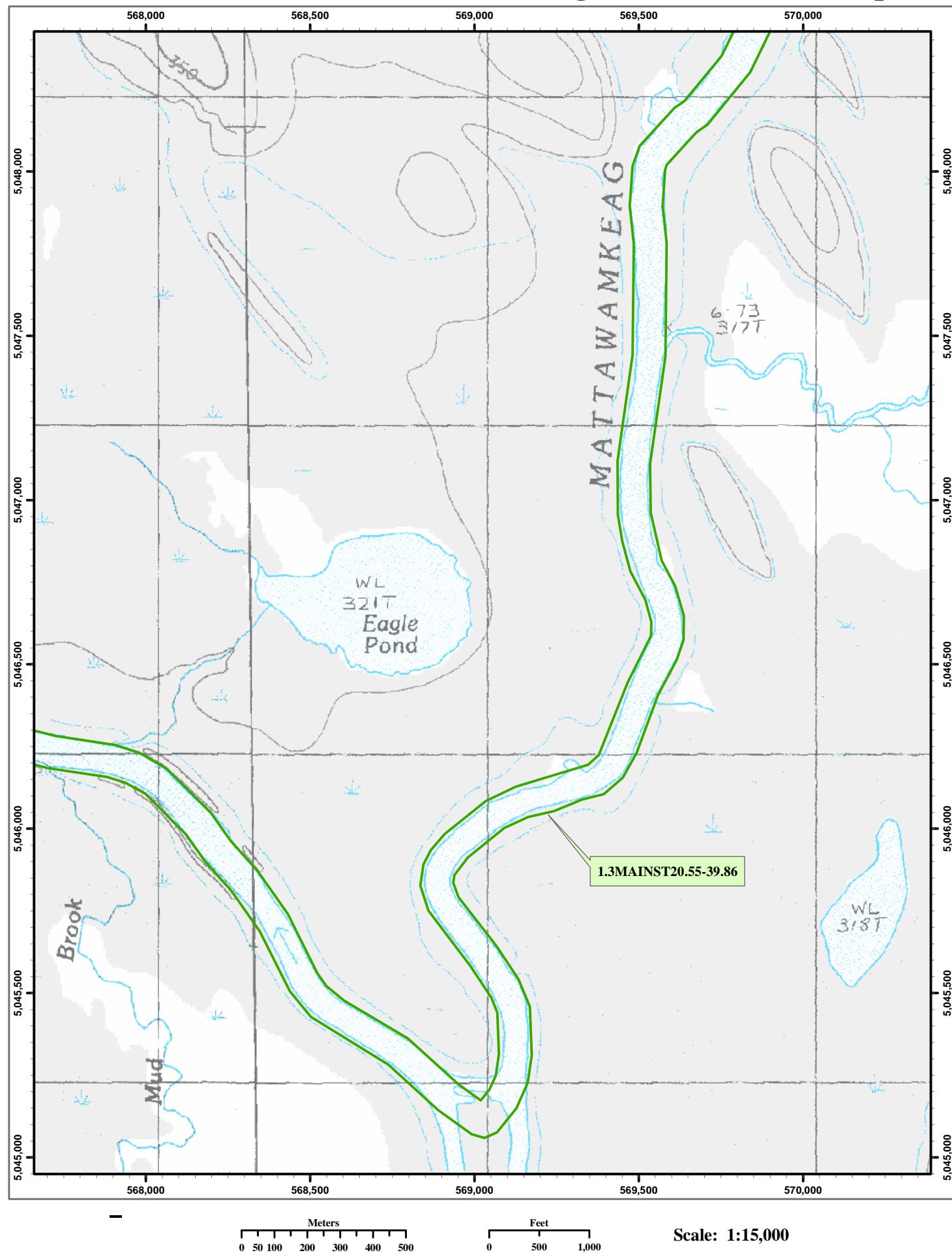
Map 68



Penobscot River

Mattawamkeag River

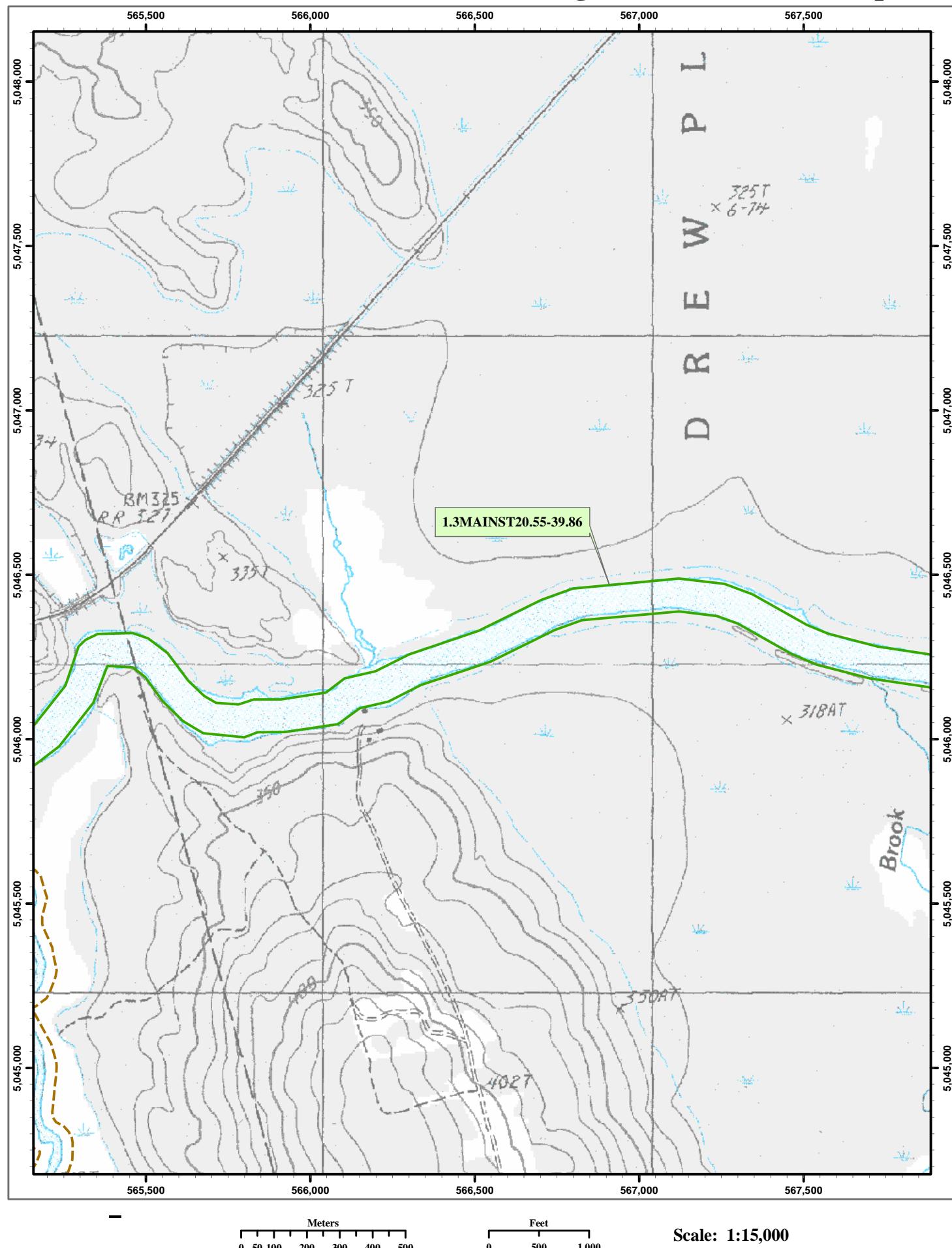
Map 69



Penobscot River

Mattawamkeag River

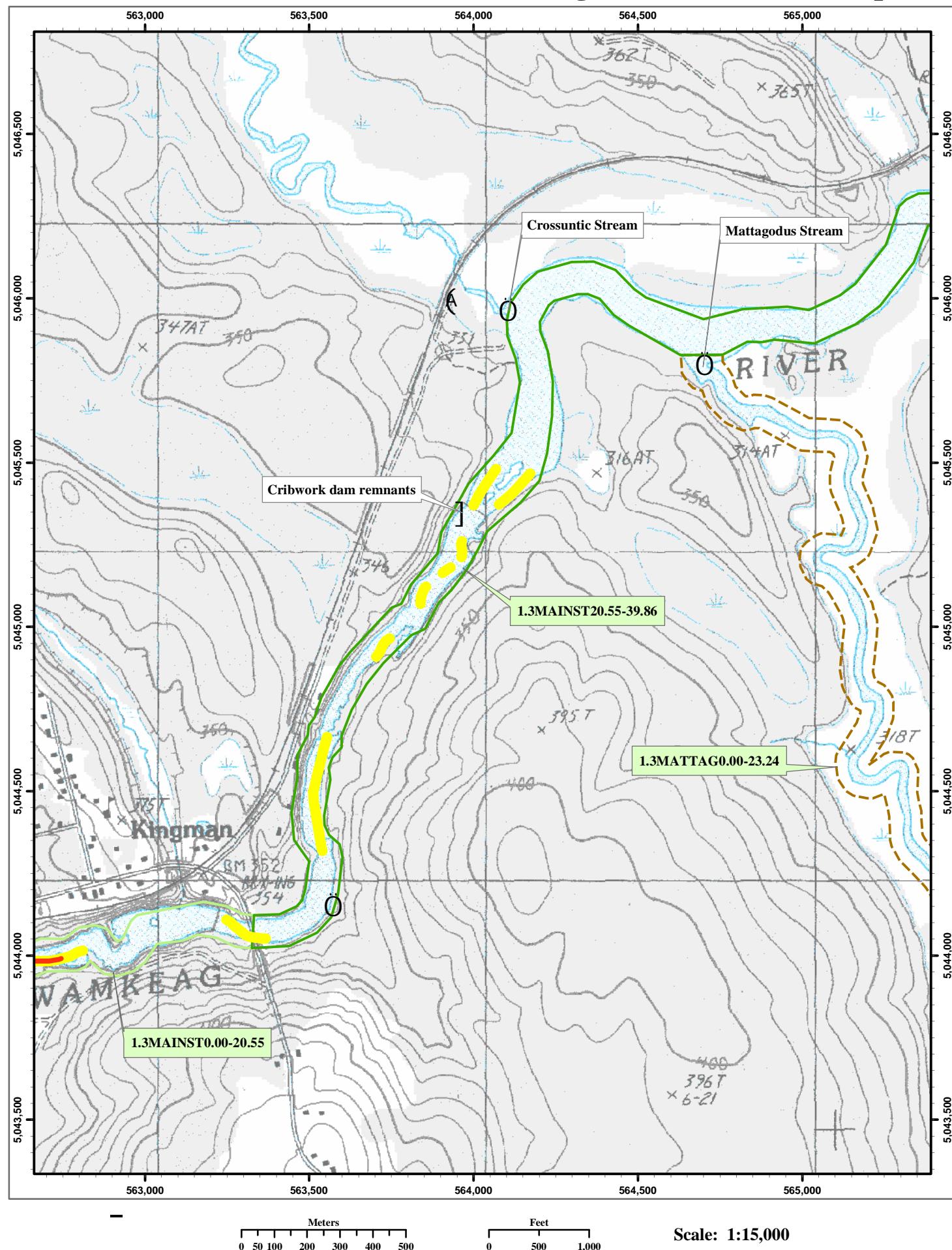
Map 70



Penobscot River

Mattawamkeag River

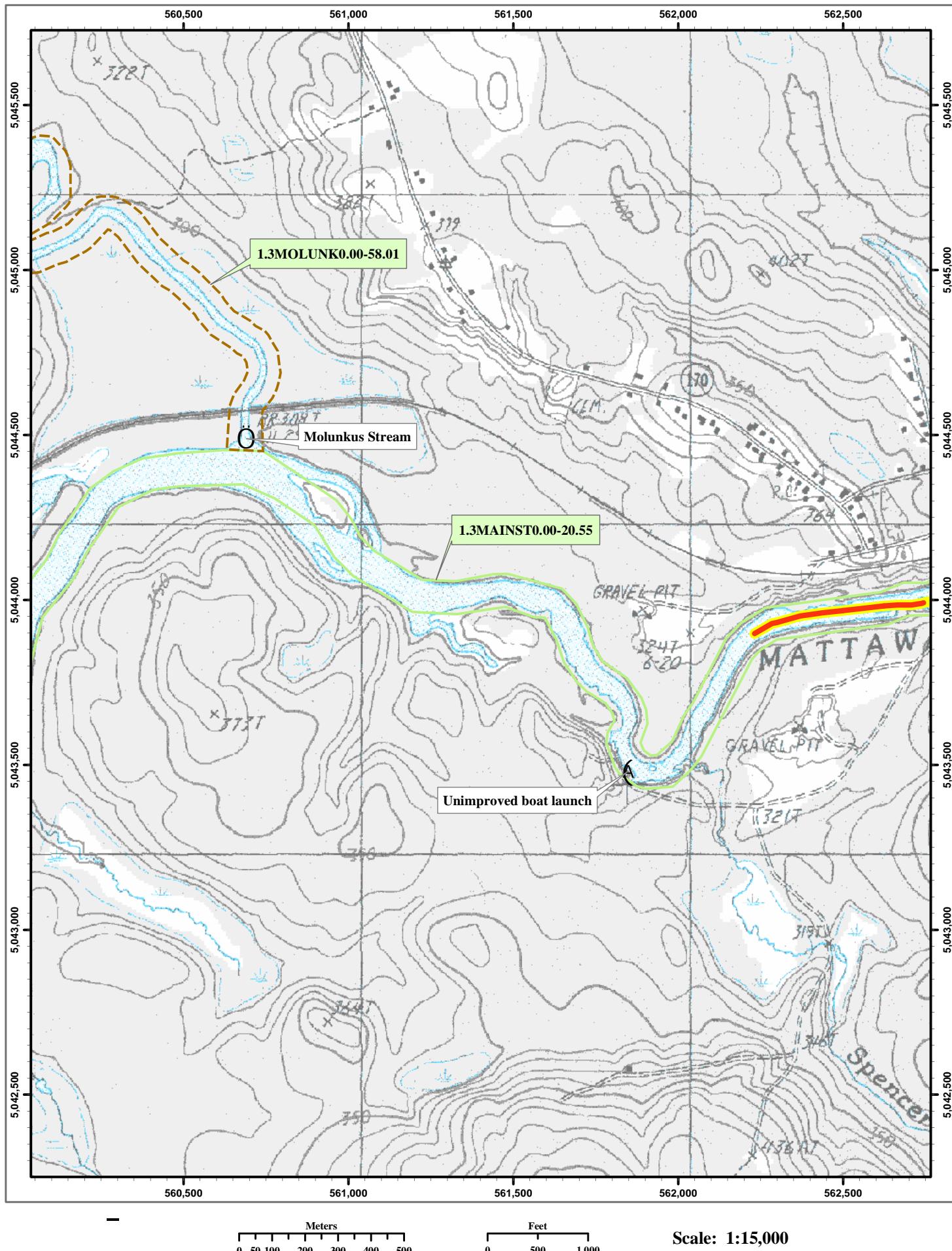
Map 71



Penobscot River

Mattawamkeag River

Map 72



Meters
0 50 100 200 300 400 500

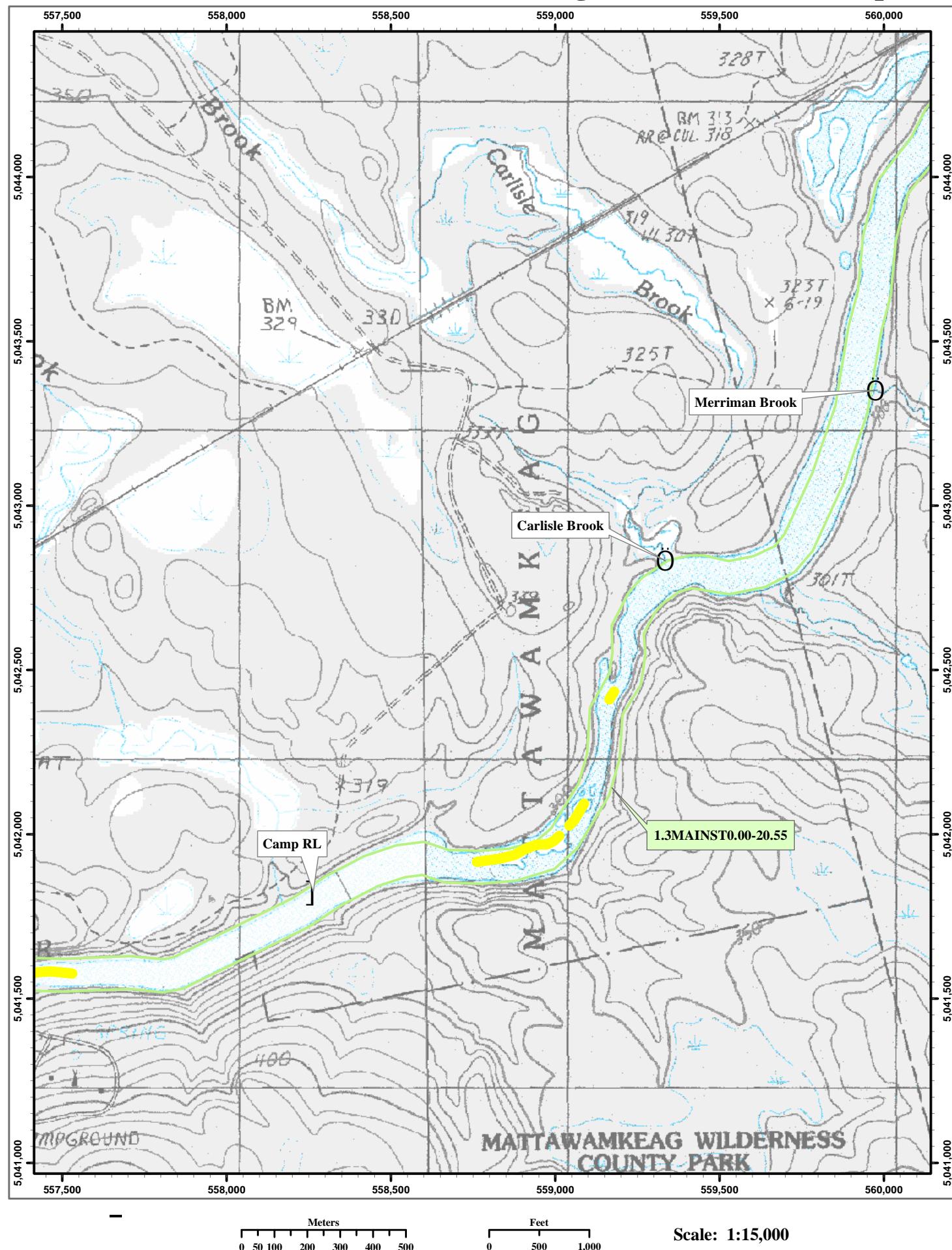
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Mattawamkeag River

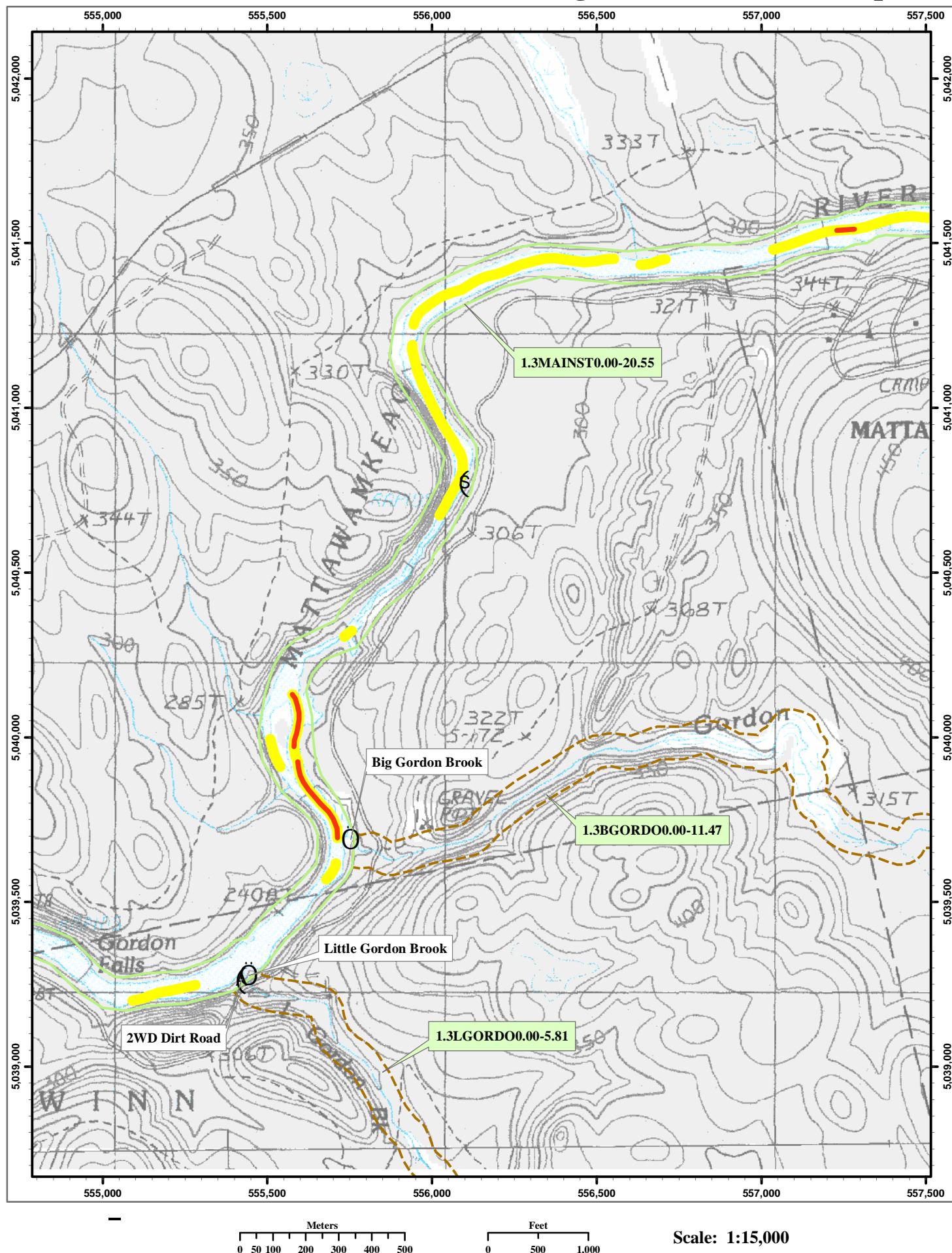
Map 73



Penobscot River

Mattawamkeag River

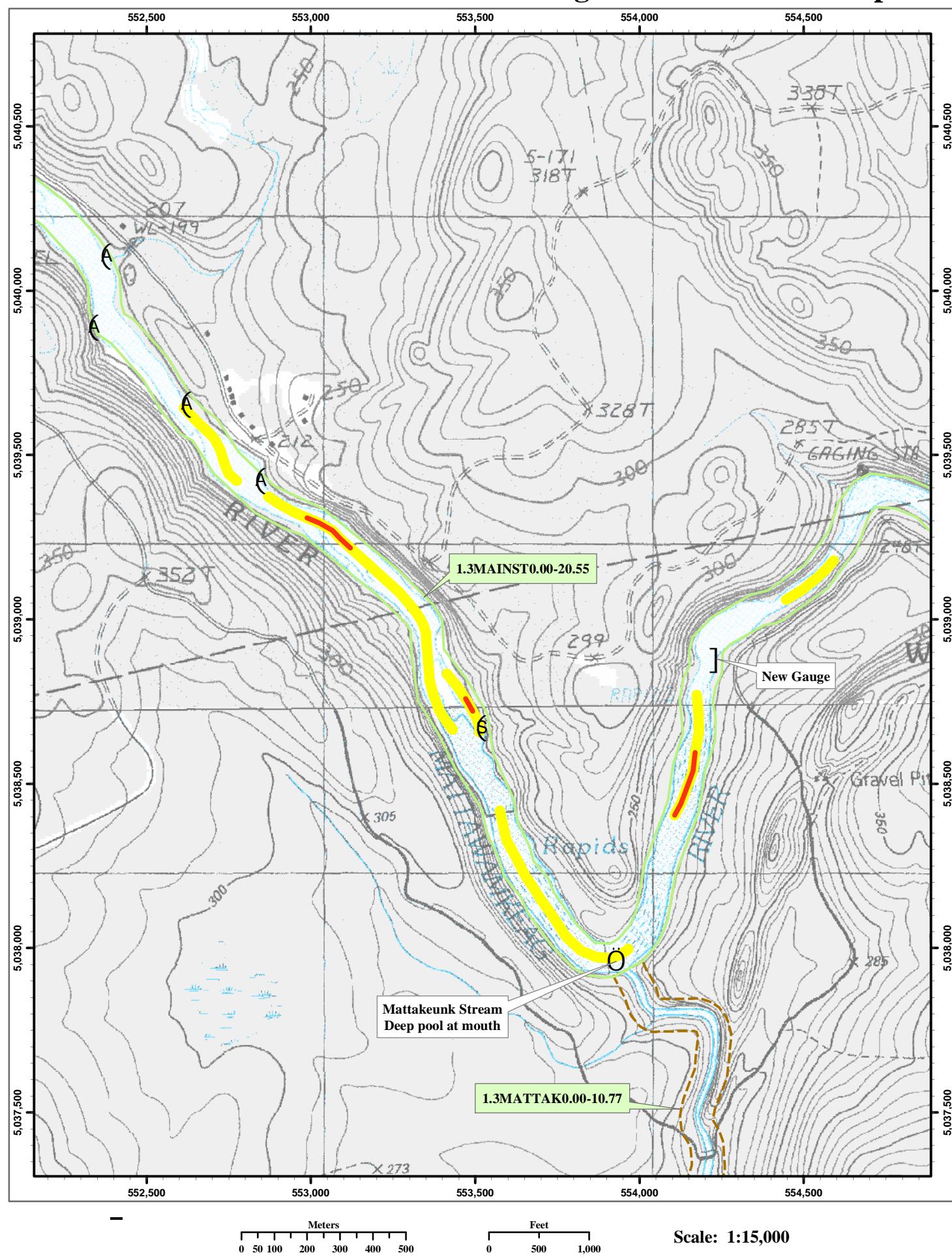
Map 74



Penobscot River

Mattawamkeag River

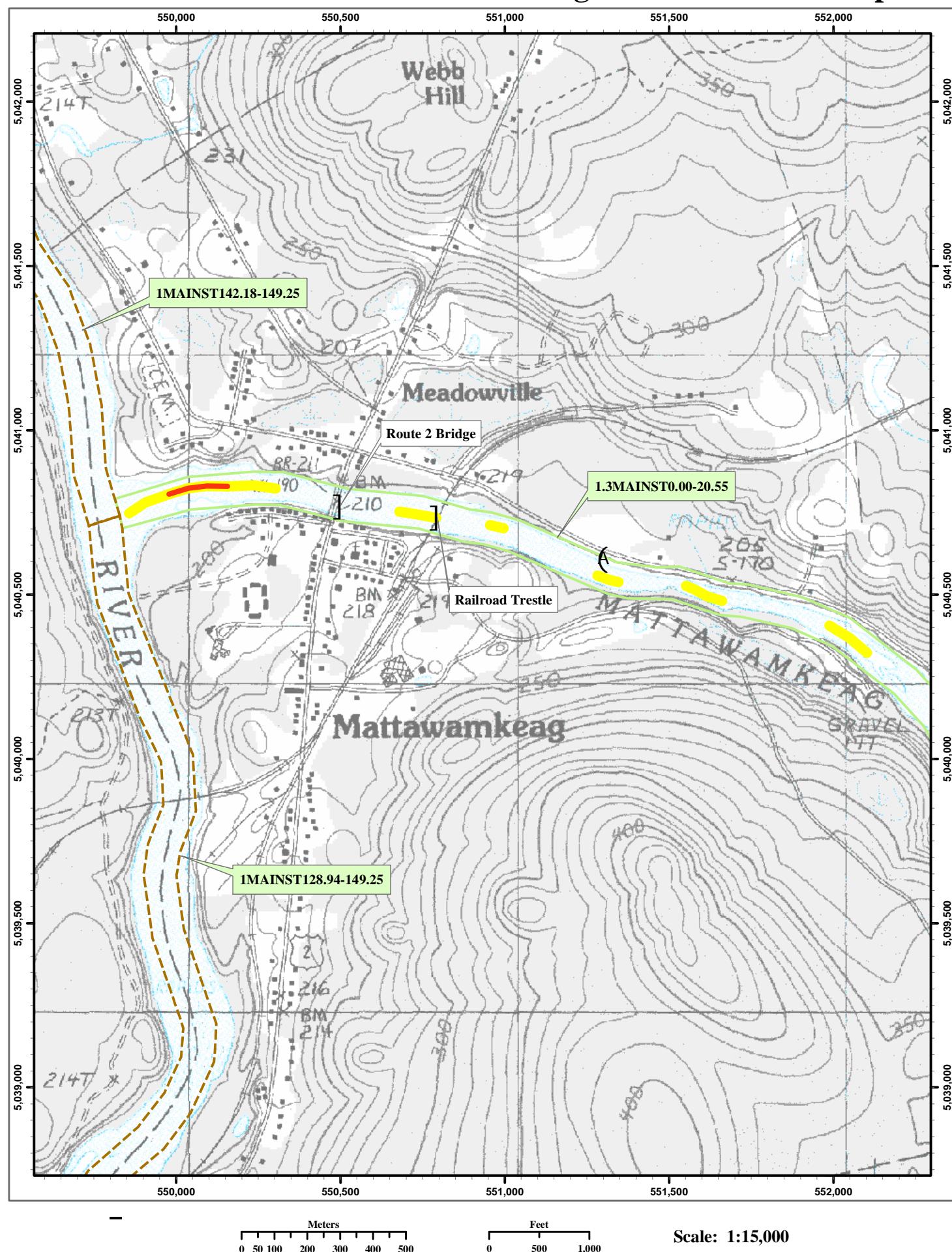
Map 75



Penobscot River

Mattawamkeag River

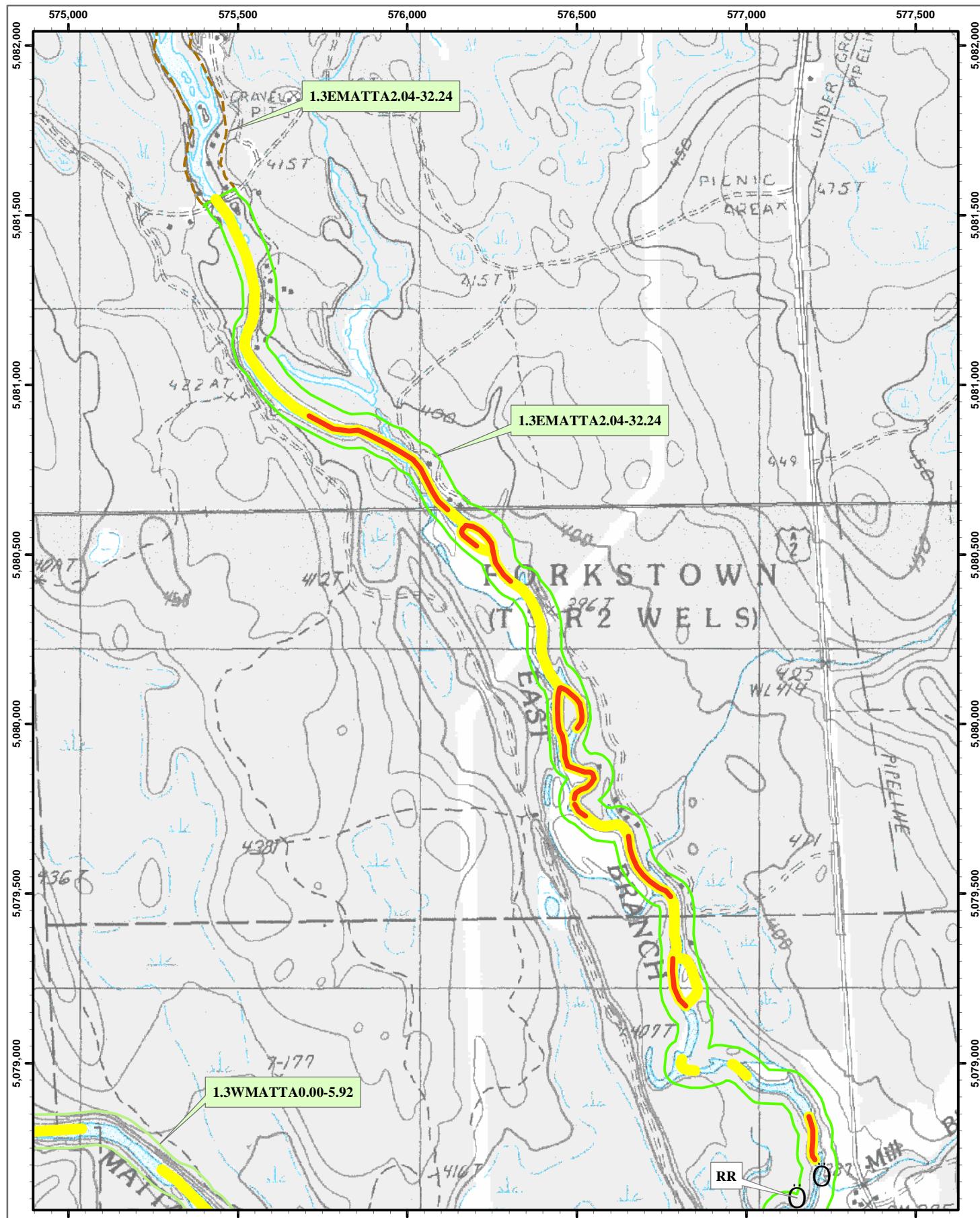
Map 76



Penobscot River

East Branch Mattawamkeag River

Map 77



Meters
0 50 100 200 300 400 500

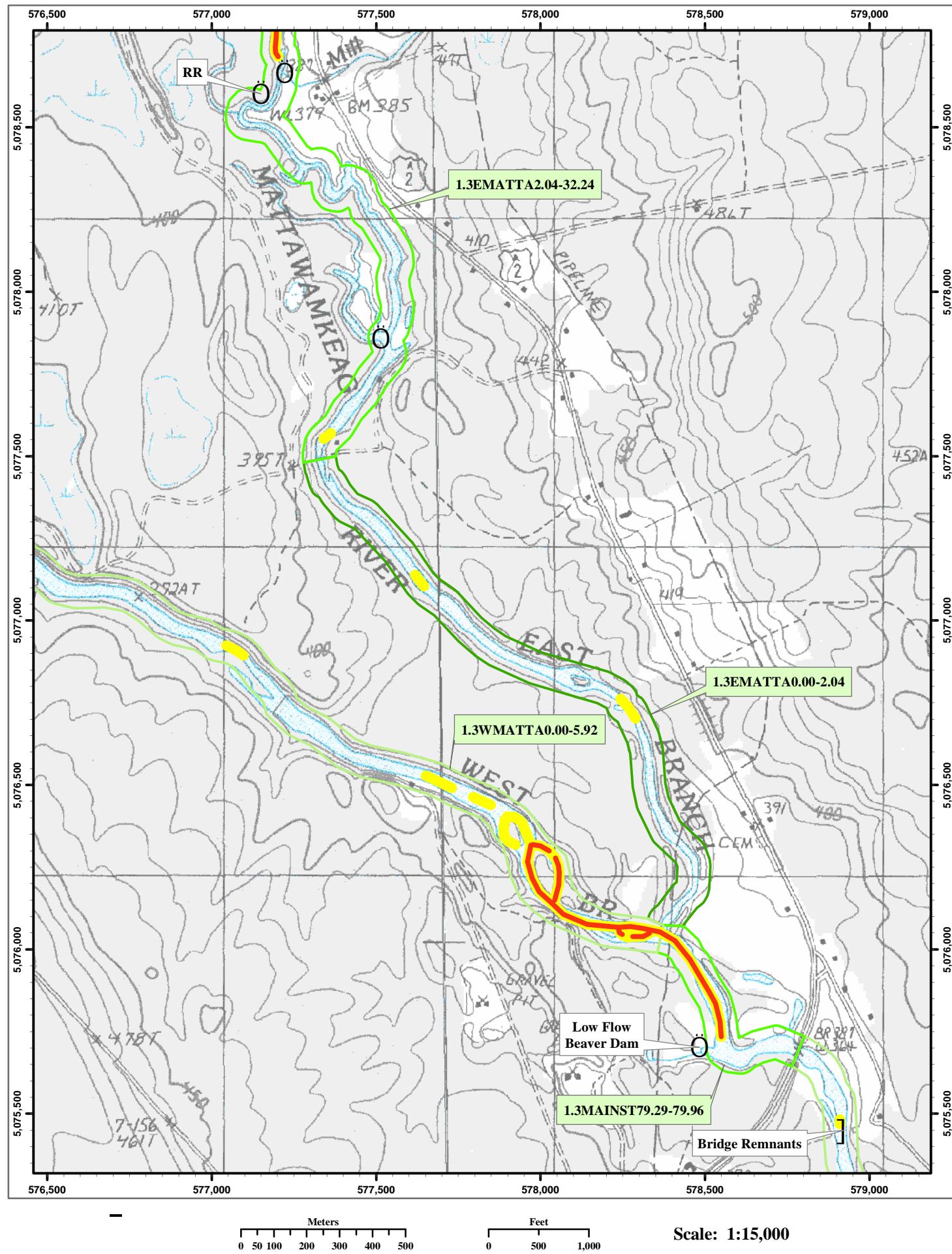
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

East Branch Mattawamkeag River

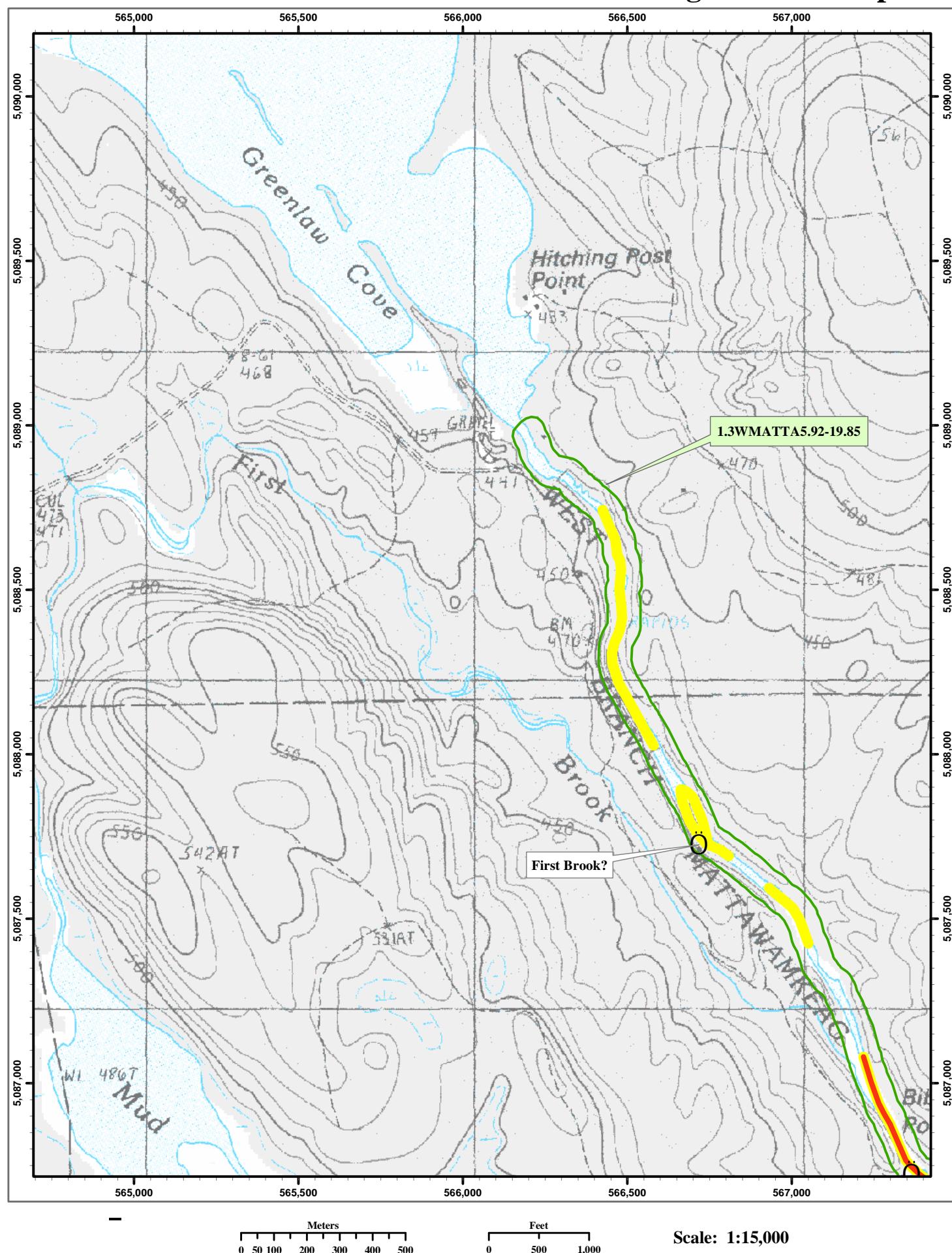
Map 78



Penobscot River

West Branch Mattawamkeag River

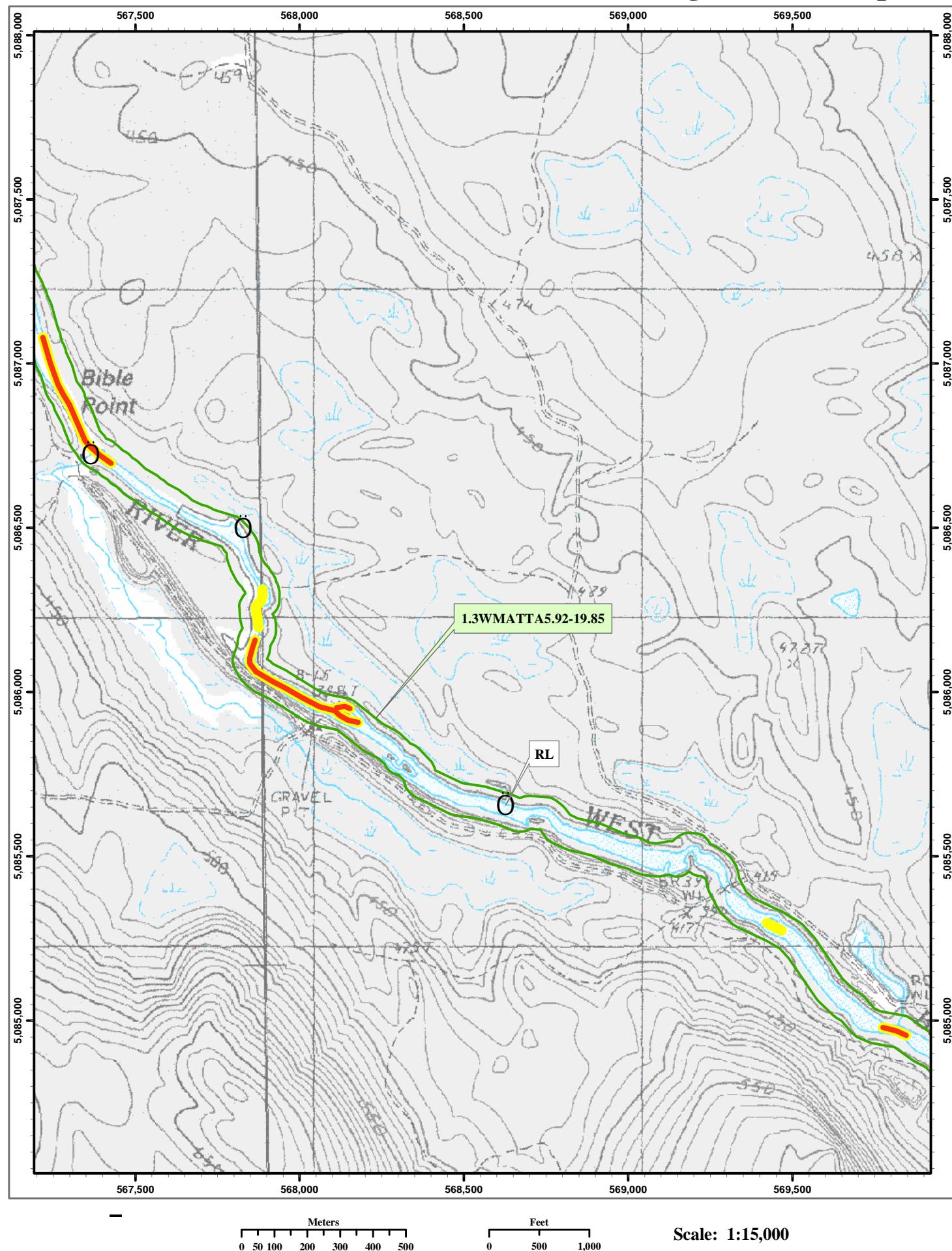
Map 79



Penobscot River

West Branch Mattawamkeag River

Map 80



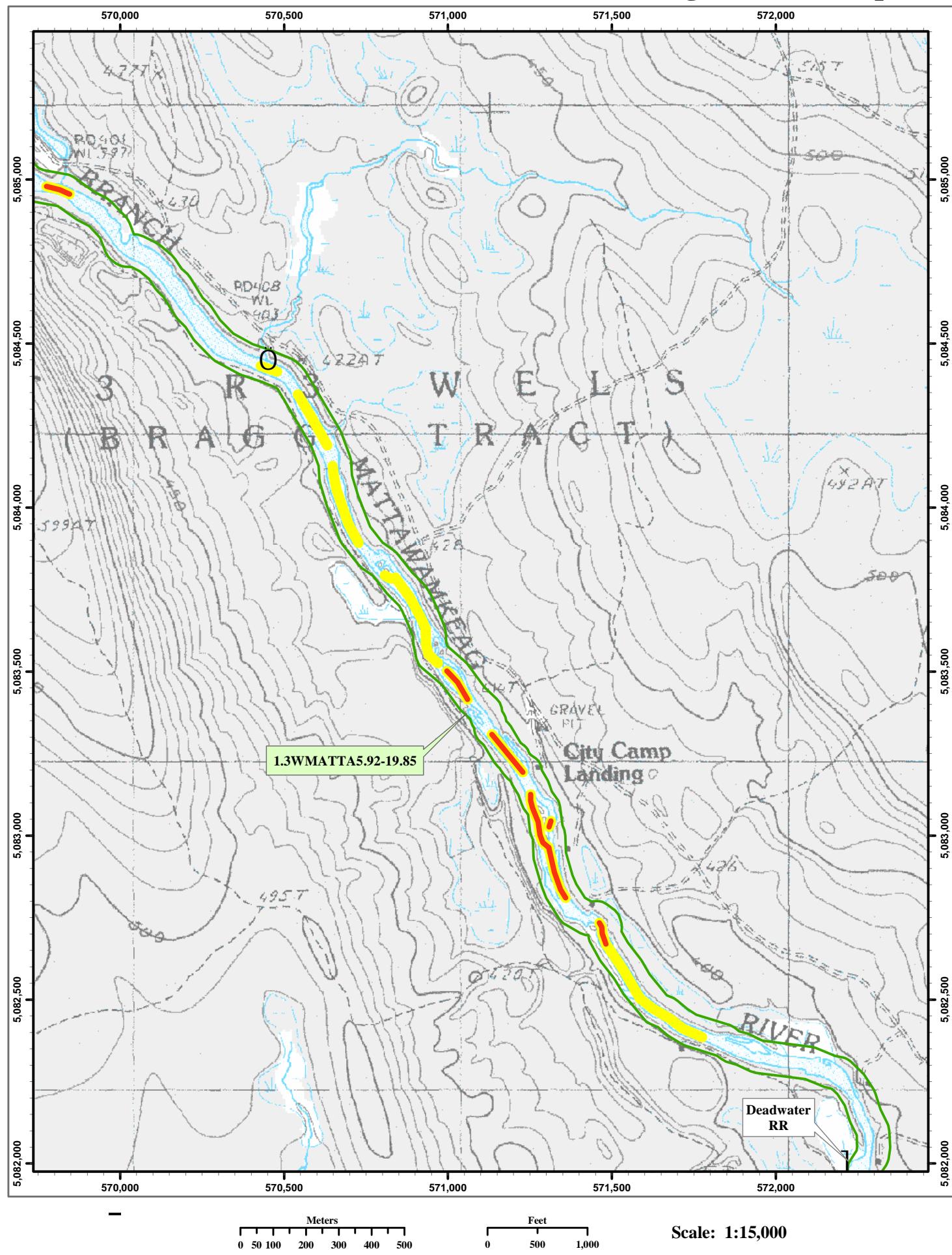
Scale: 1:15,000

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Penobscot River

West Branch Mattawamkeag River

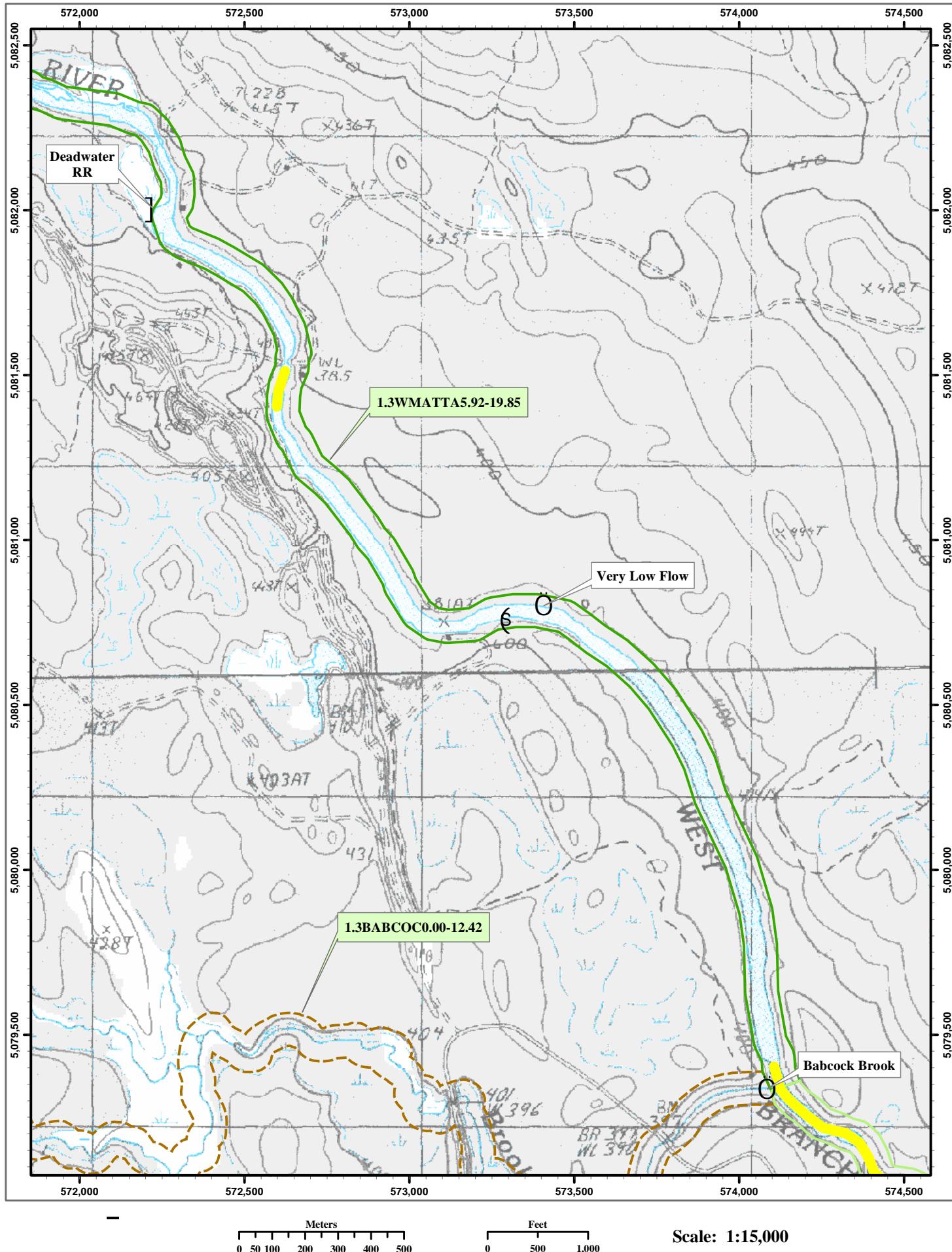
Map 81



Penobscot River

West Branch Mattawamkeag River

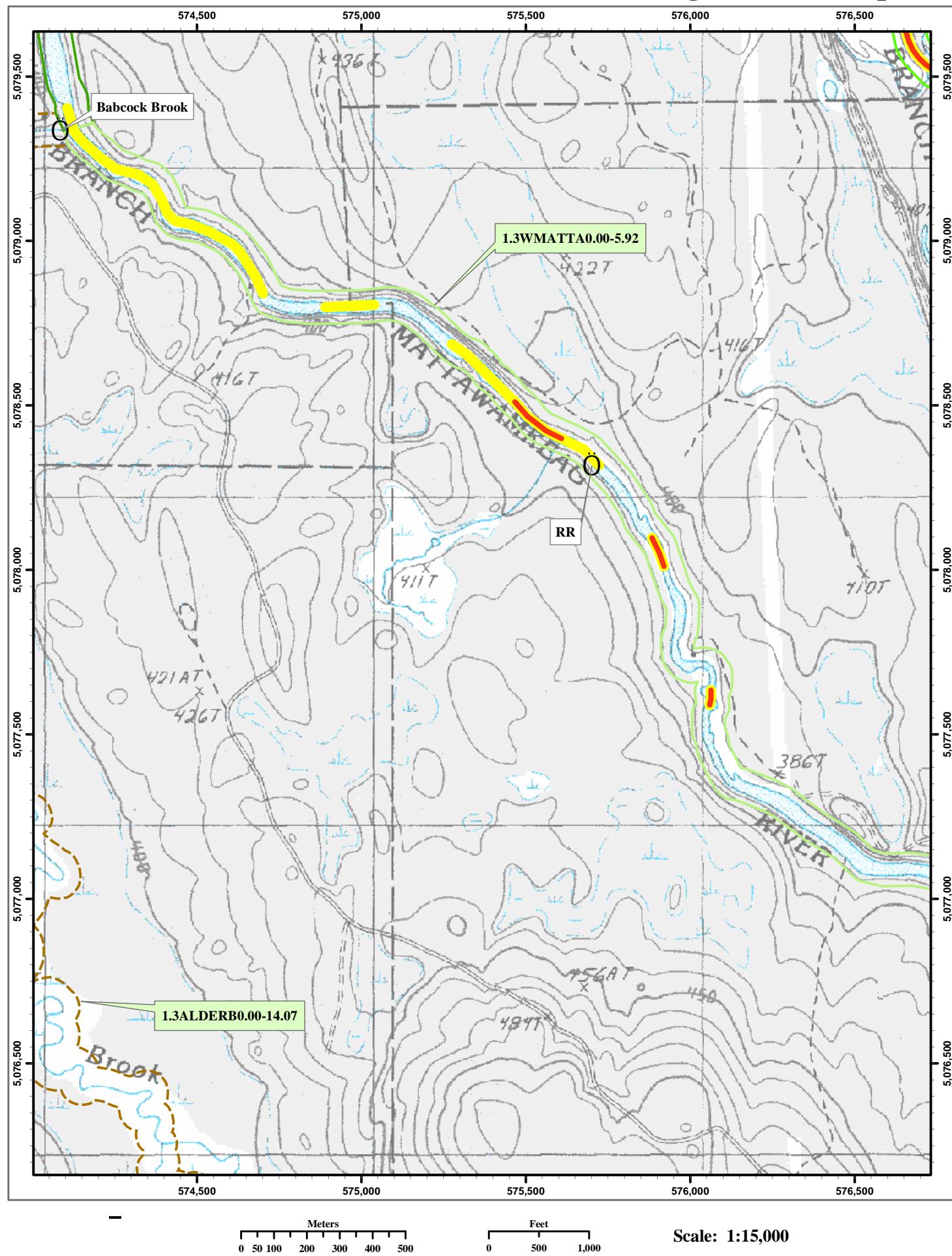
Map 82



Penobscot River

West Branch Mattawamkeag River

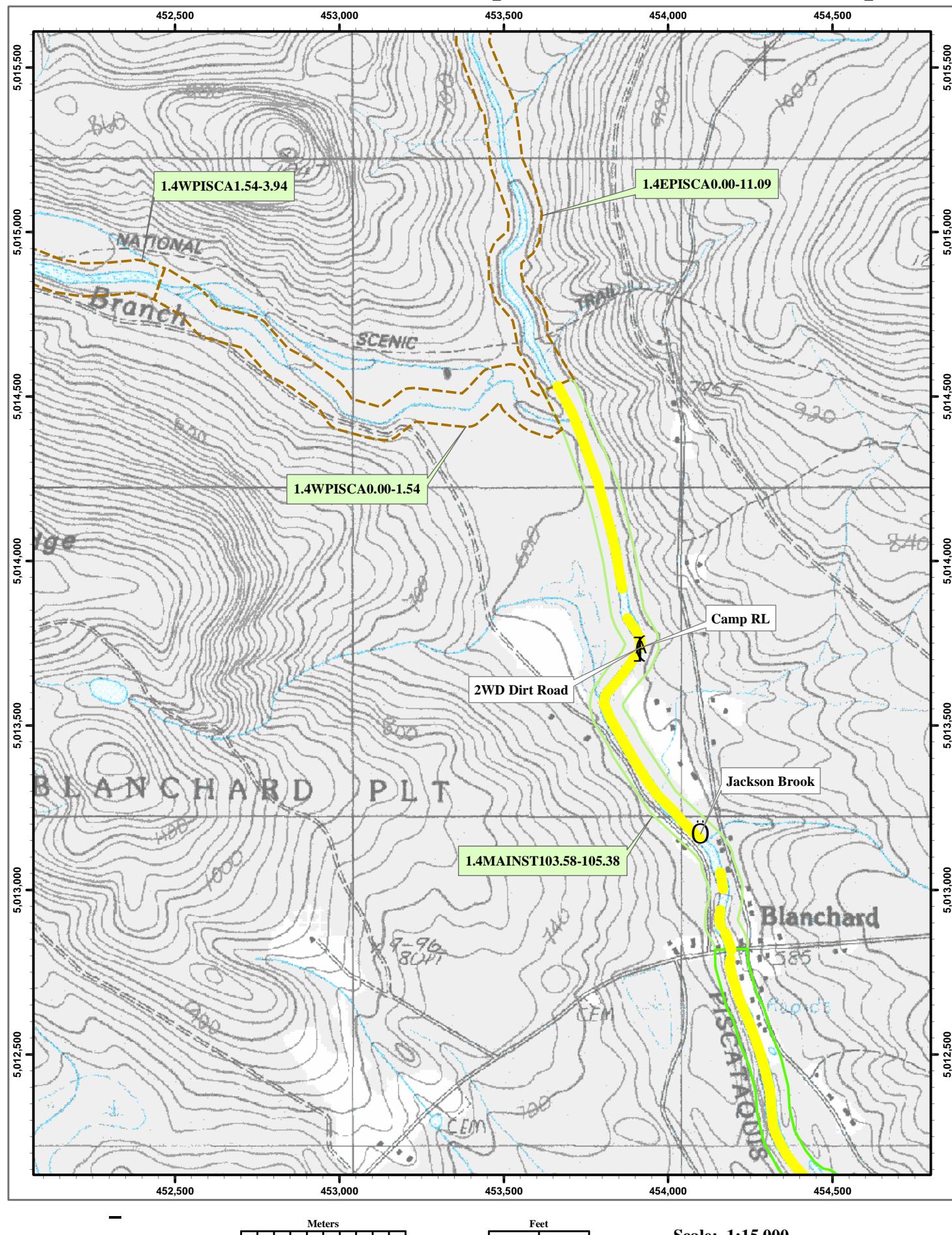
Map 83



Penobscot River

Piscataquis River

Map 84



Meters
0 50 100 200 300 400 500

Feet
0 500 1,000

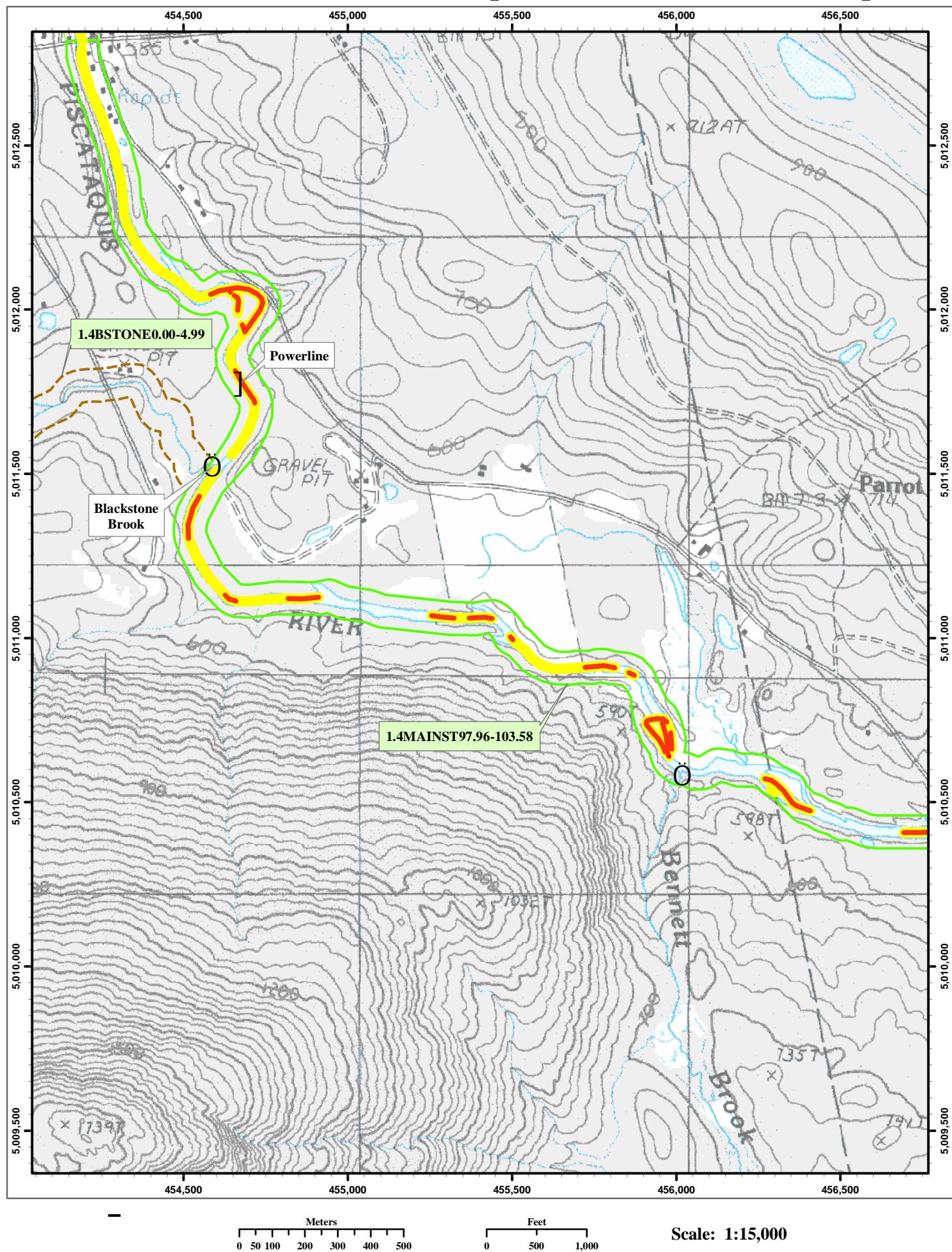
Scale: 1:15,000

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Penobscot River

Piscataquis River

Map 85



Meters
0 50 100 200 300 400 500

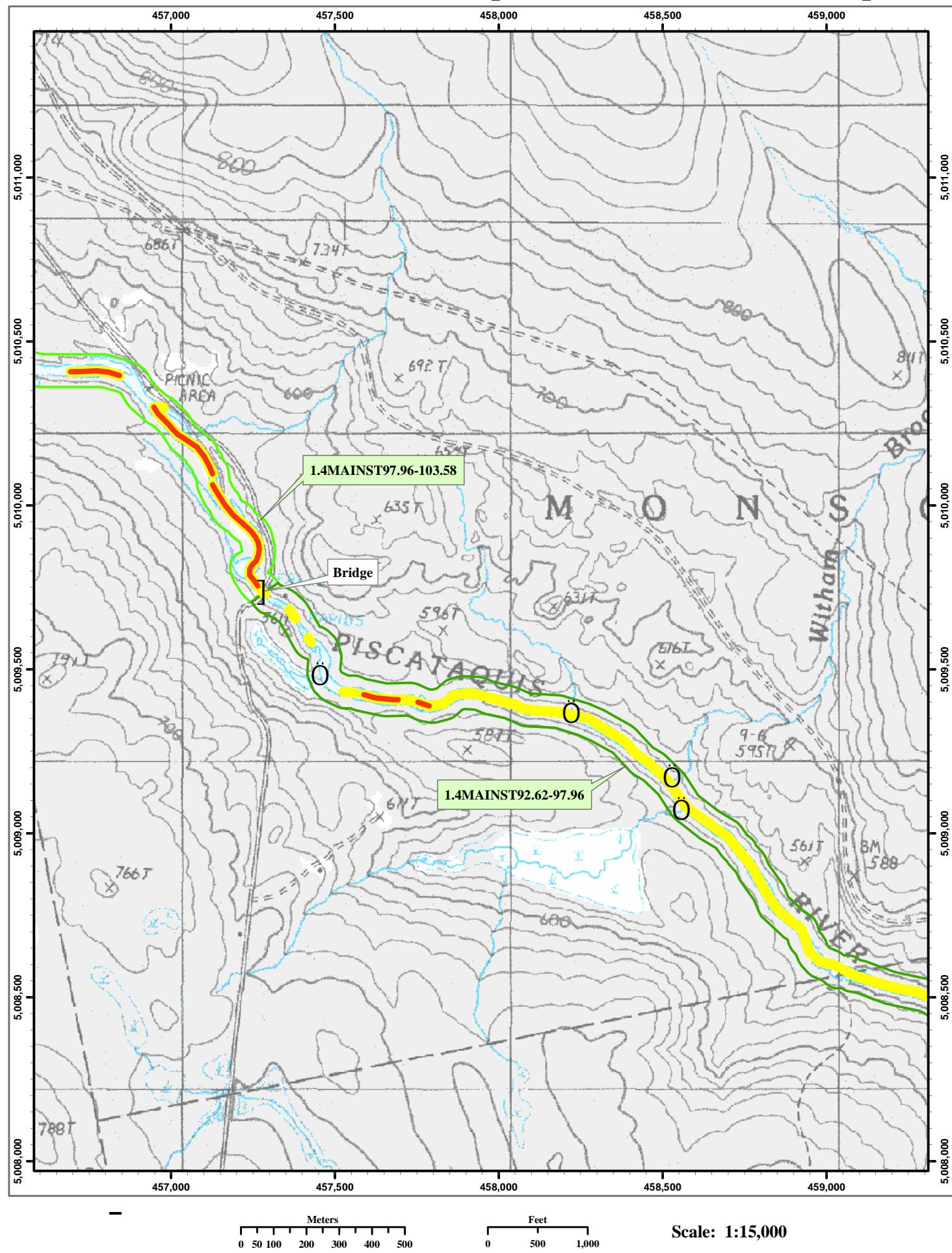
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

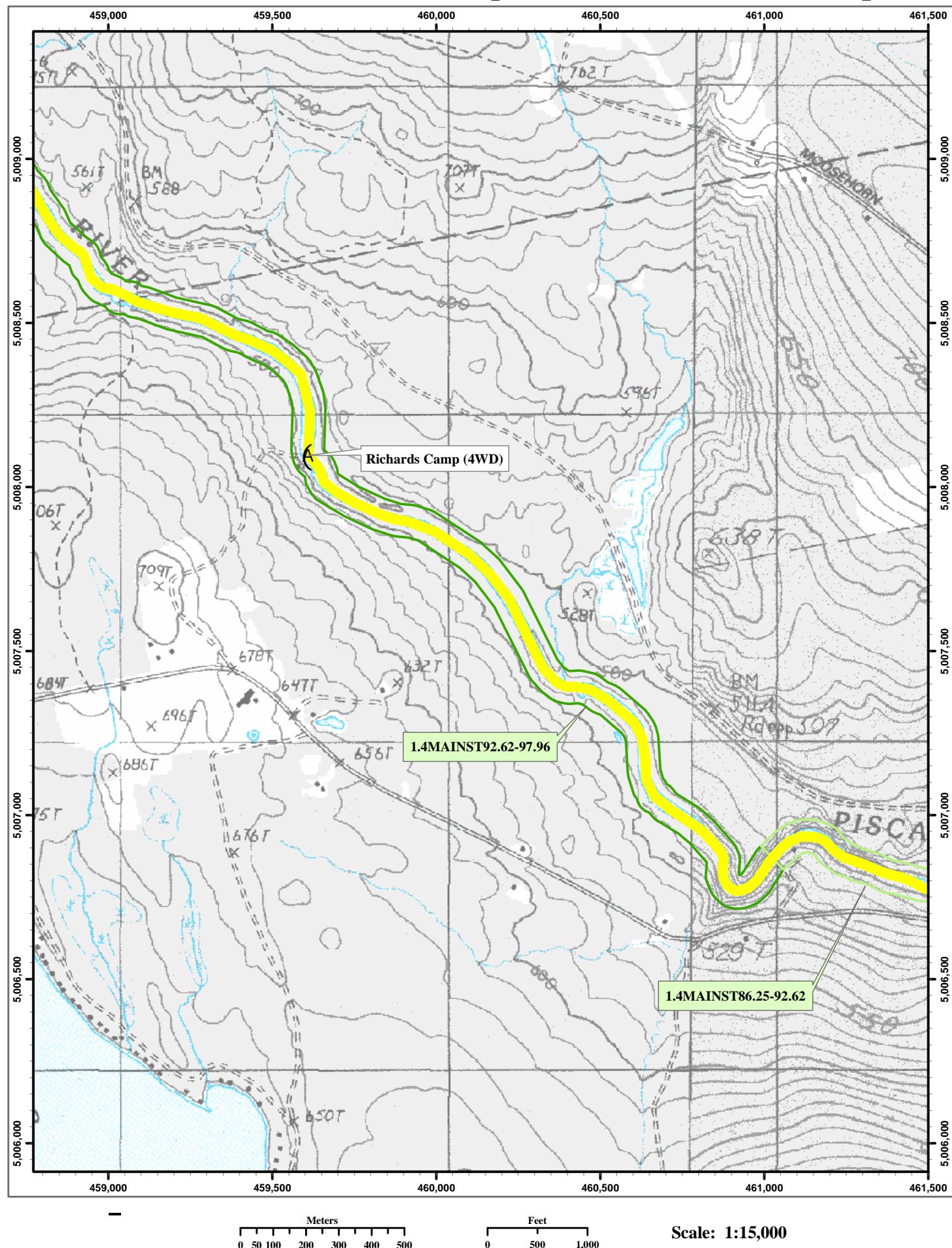
Map 86



Penobscot River

Piscataquis River

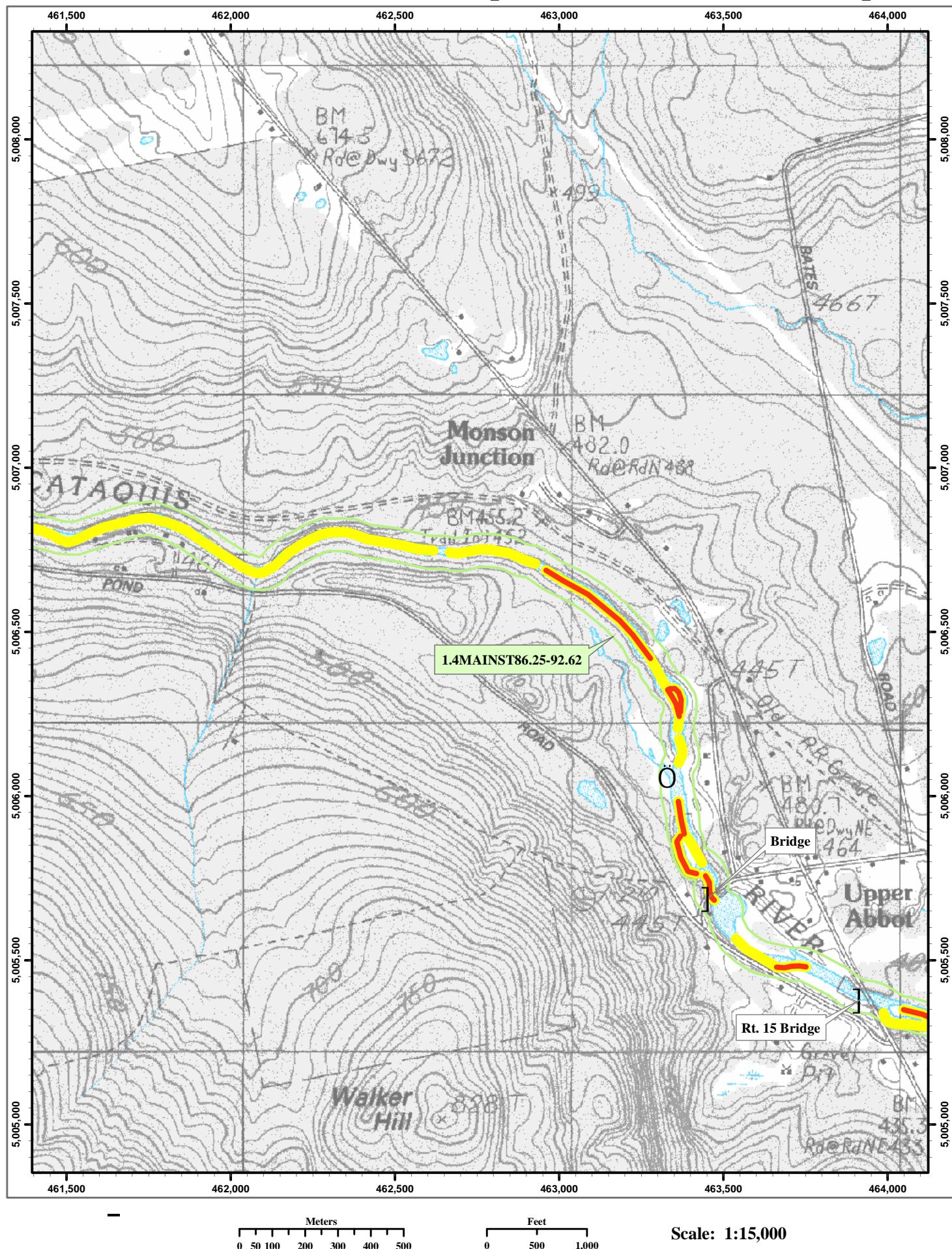
Map 87



Penobscot River

Piscataquis River

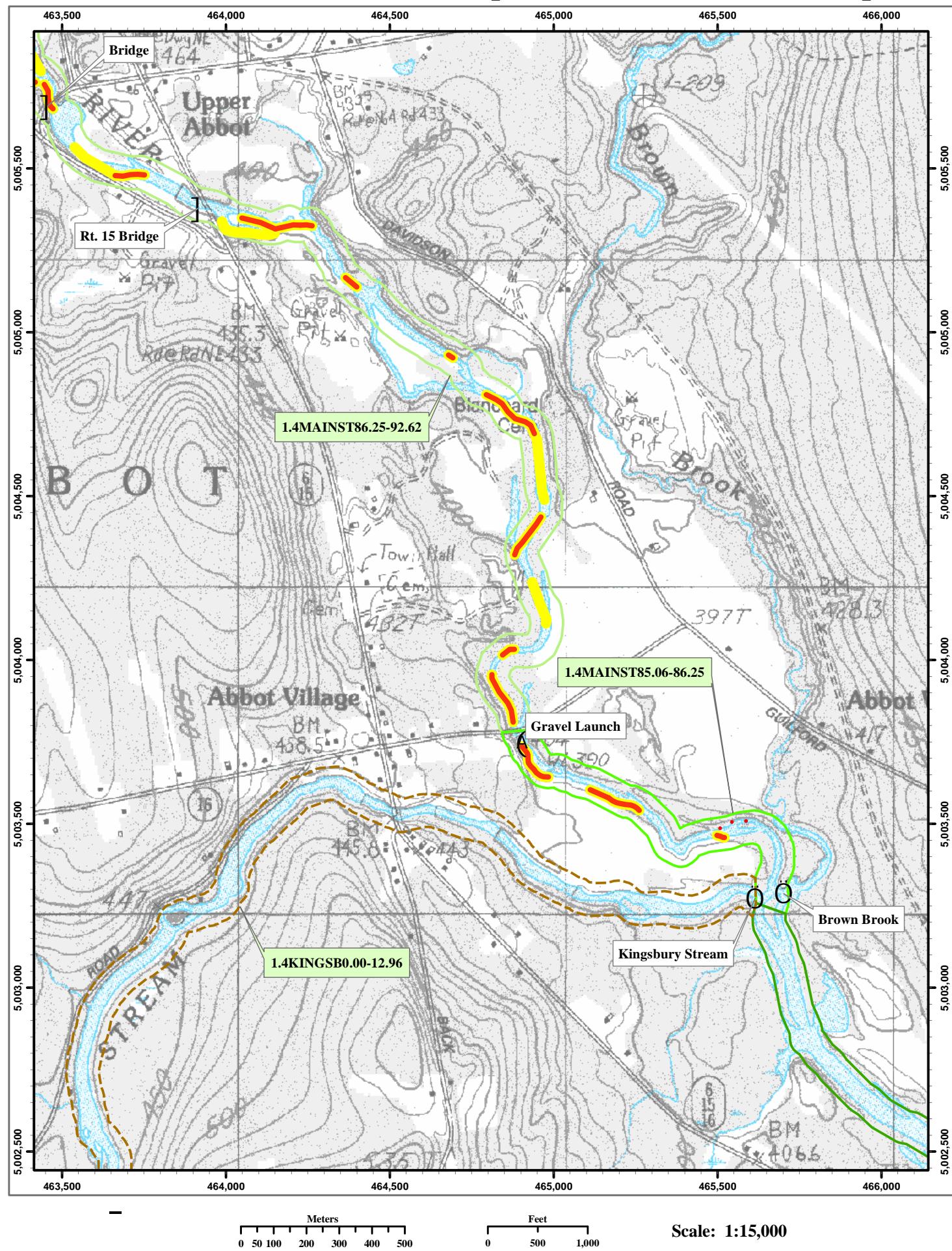
Map 88



Penobscot River

Piscataquis River

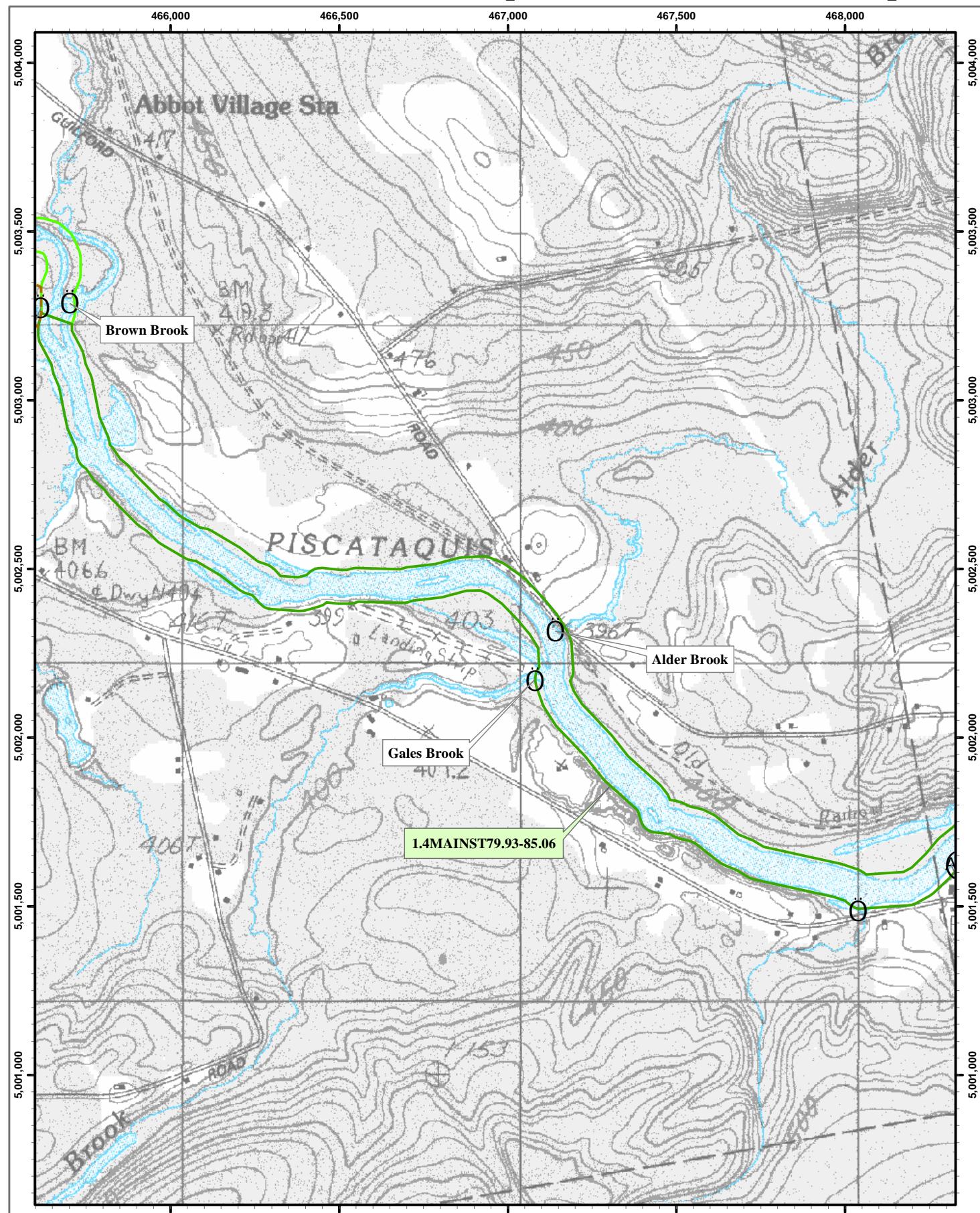
Map 89



Penobscot River

Piscataquis River

Map 90



Meters
0 50 100 200 300 400 500

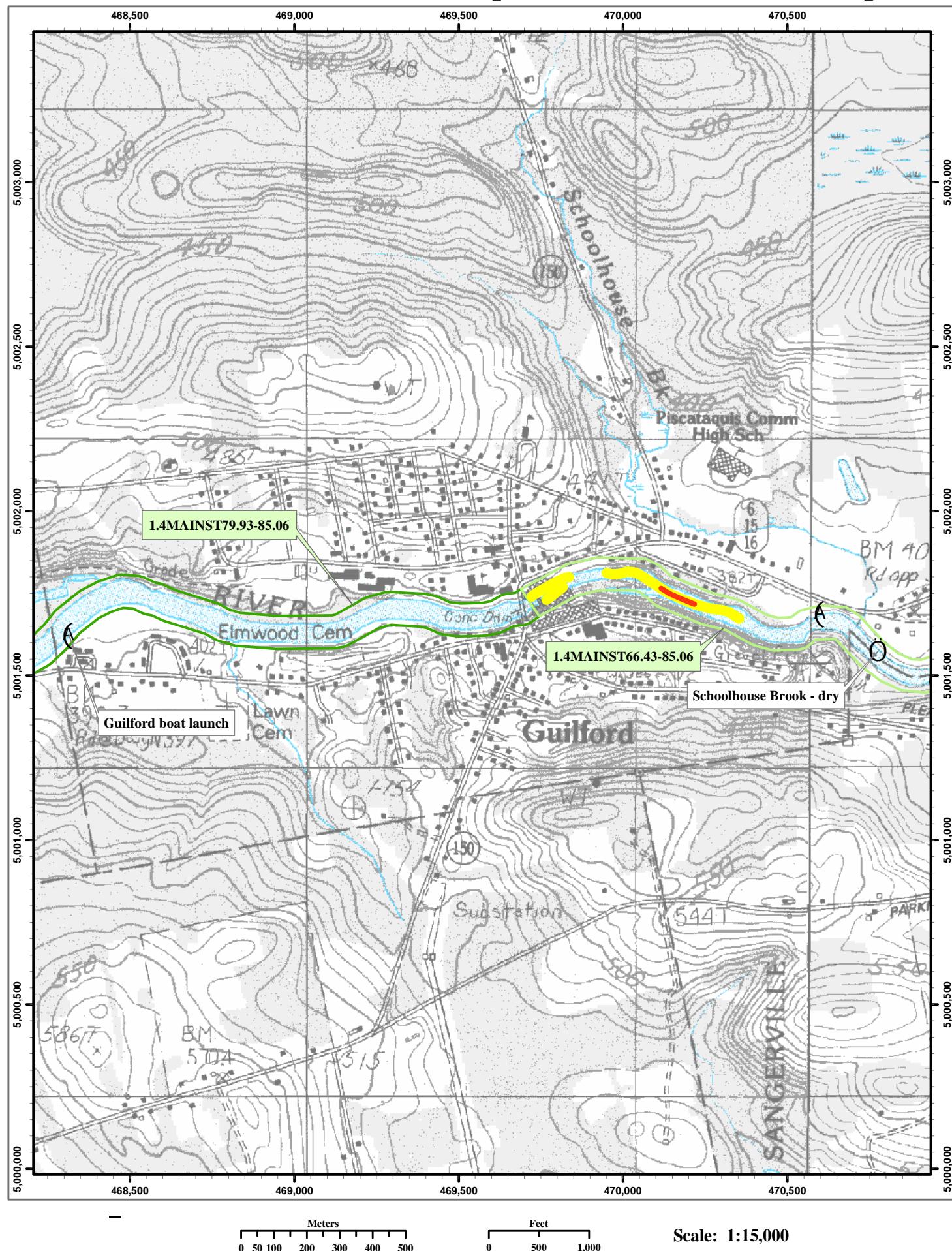
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

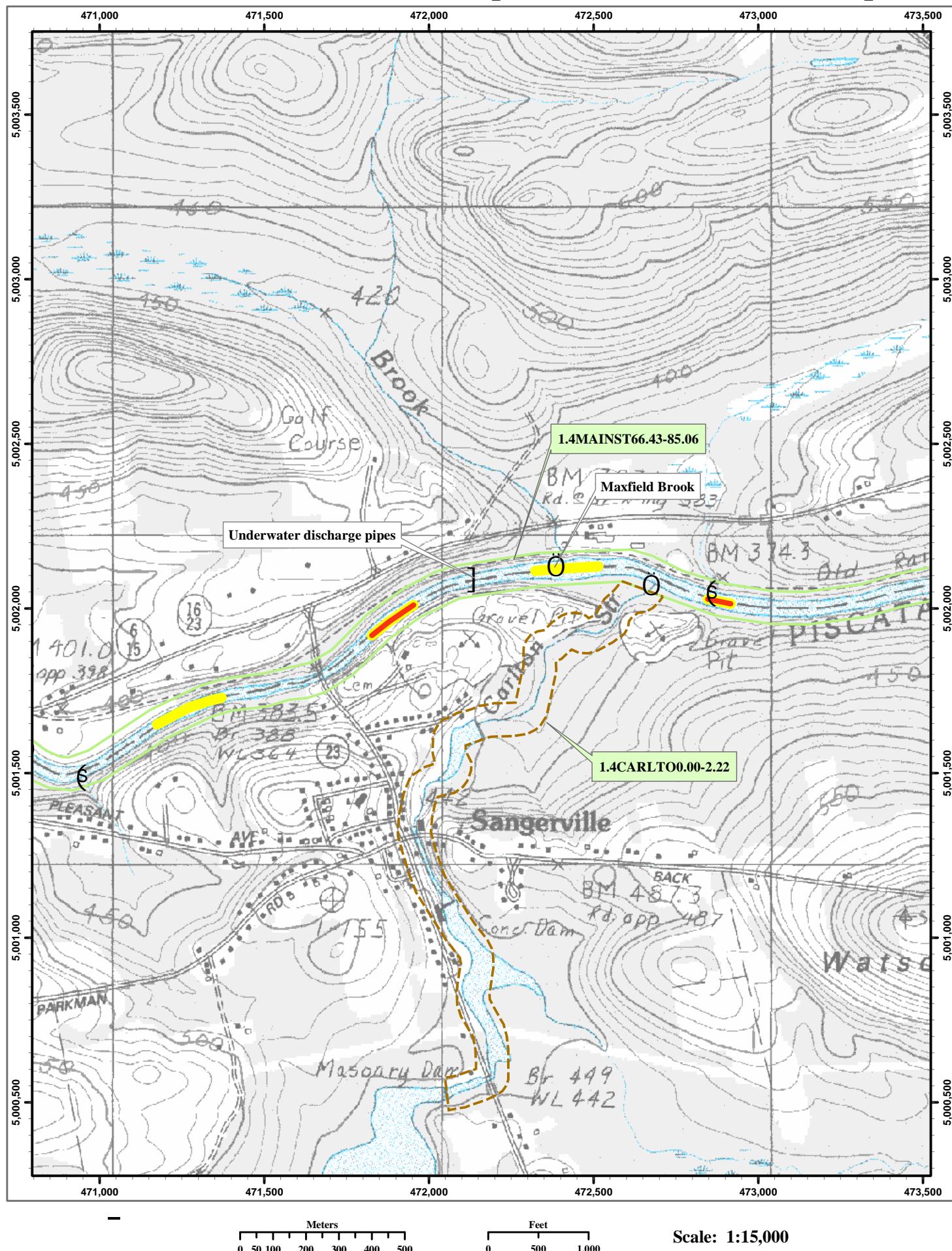
Map 91



Penobscot River

Piscataquis River

Map 92

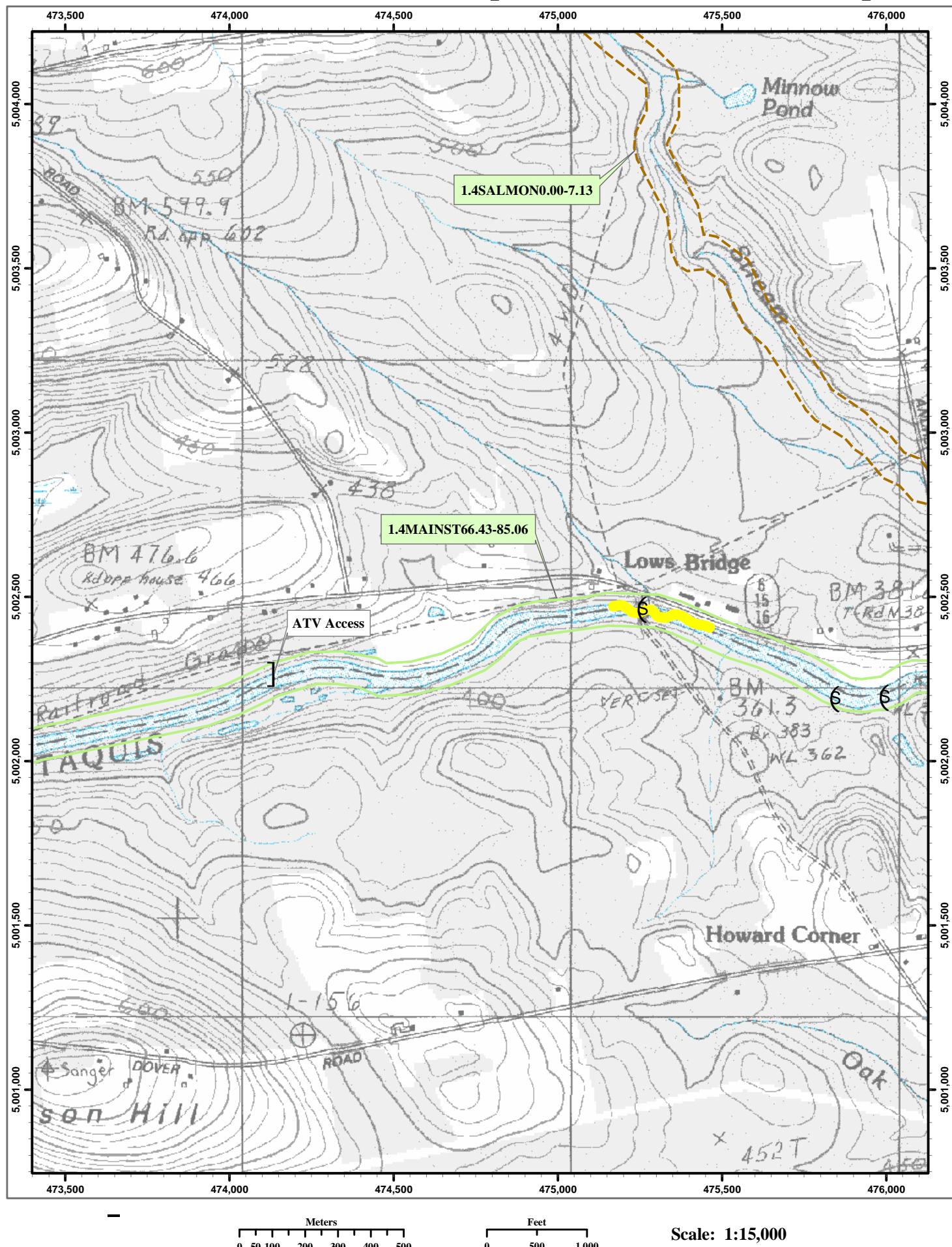


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Penobscot River

Piscataquis River

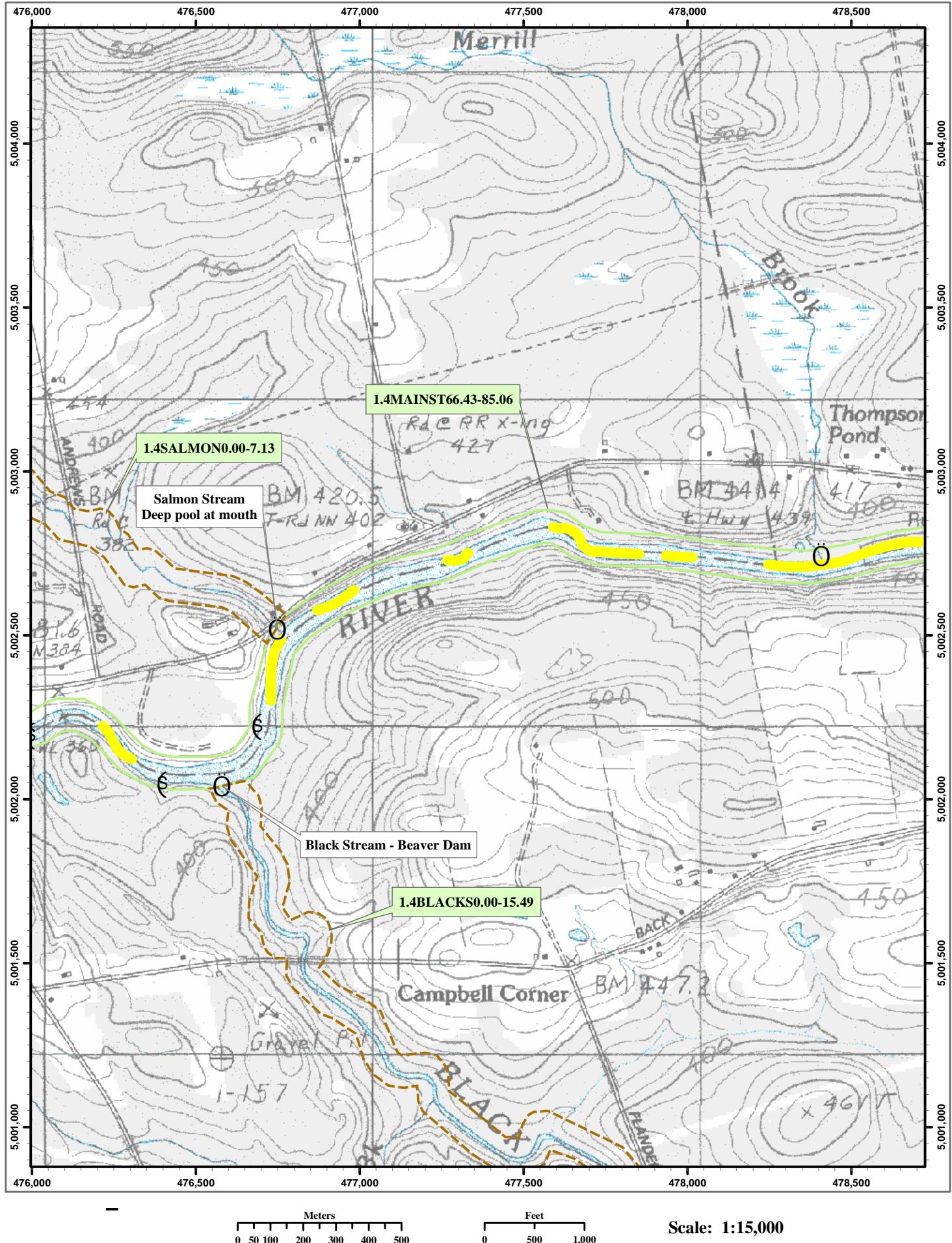
Map 93



Penobscot River

Piscataquis River

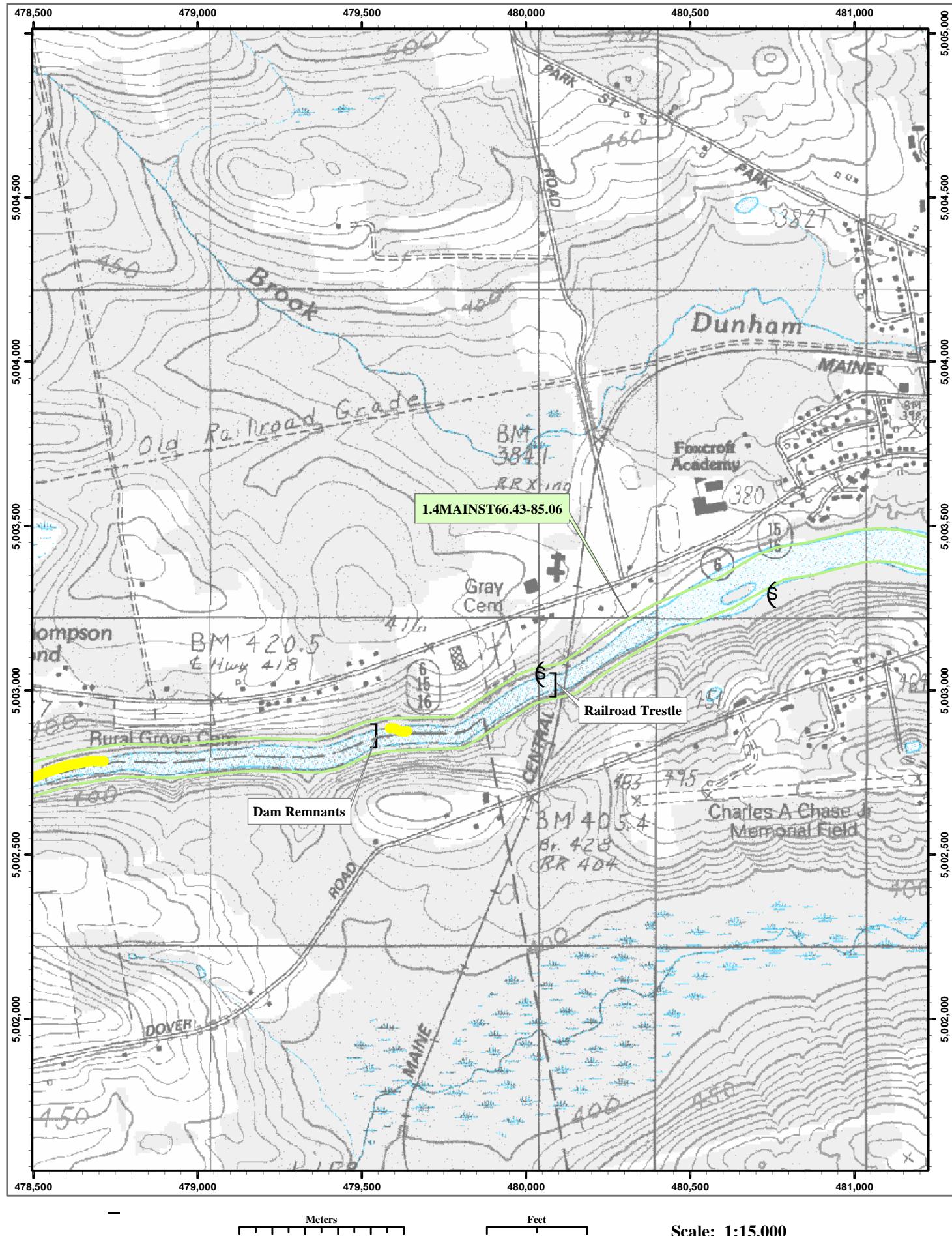
Map 94



Penobscot River

Piscataquis River

Map 95



A horizontal number line representing distance in meters. The line starts at 0 and ends at 500, with major tick marks every 50 units. The labels are 0, 50, 100, 200, 300, 400, and 500. Above the line, the word "Meters" is written in bold capital letters.

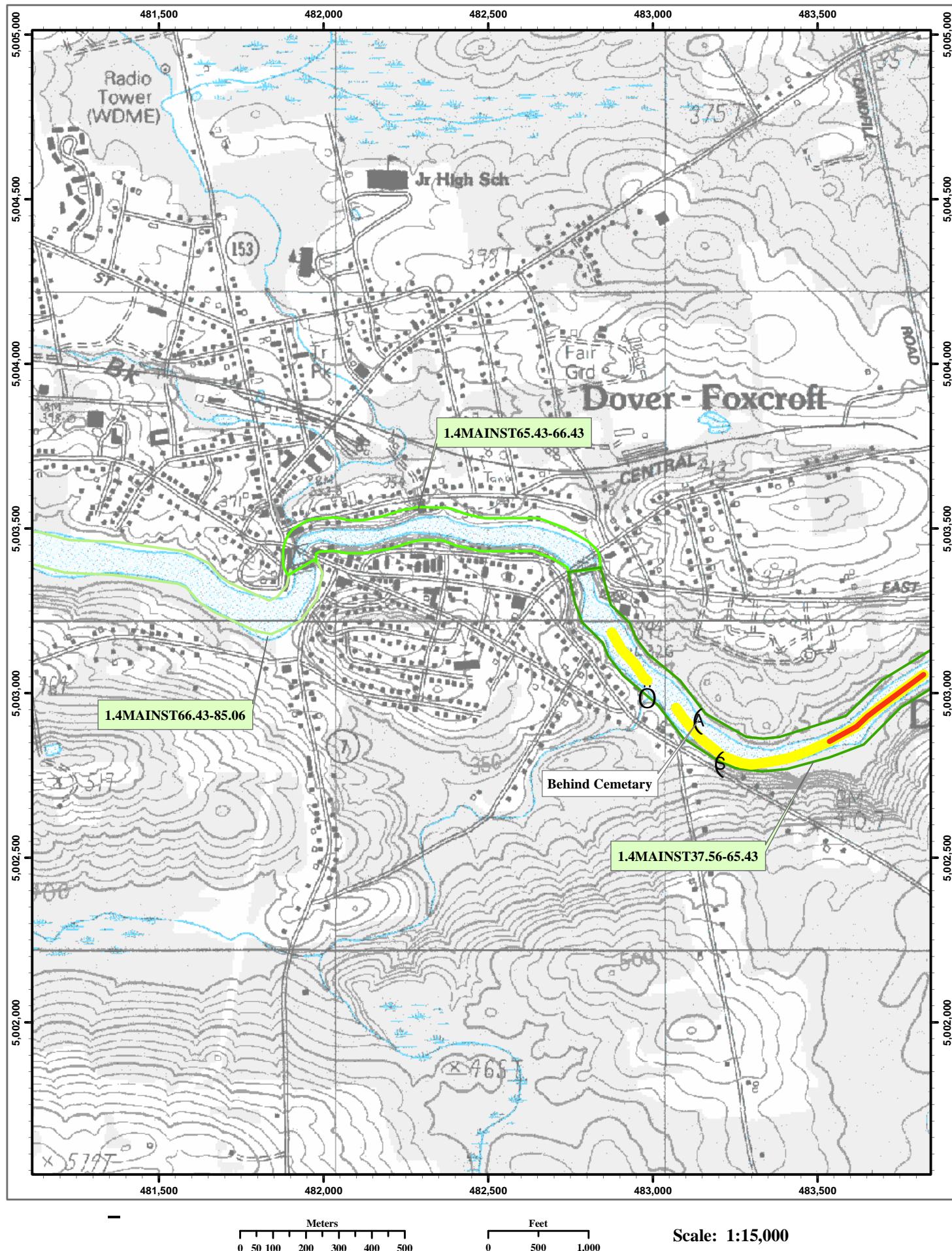
A horizontal number line representing distance in feet. The word "Feet" is written above the line. There are three tick marks on the line. The first tick mark is labeled "0". The second tick mark is labeled "500". The third tick mark is labeled "1,000".

Scale: 1:15,000

Penobscot River

Piscataquis River

Map 96



Meters
0 50 100 200 300 400 500

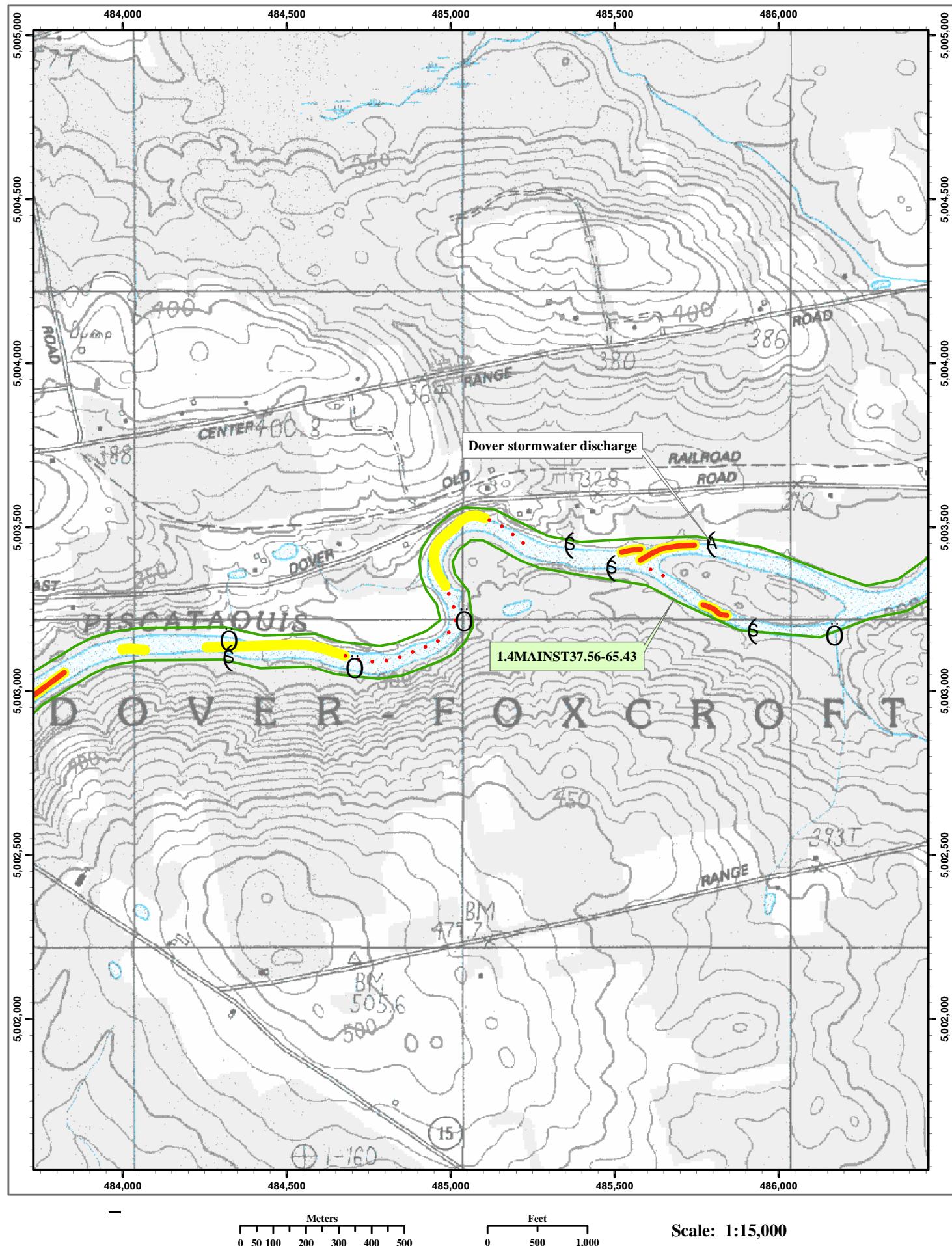
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

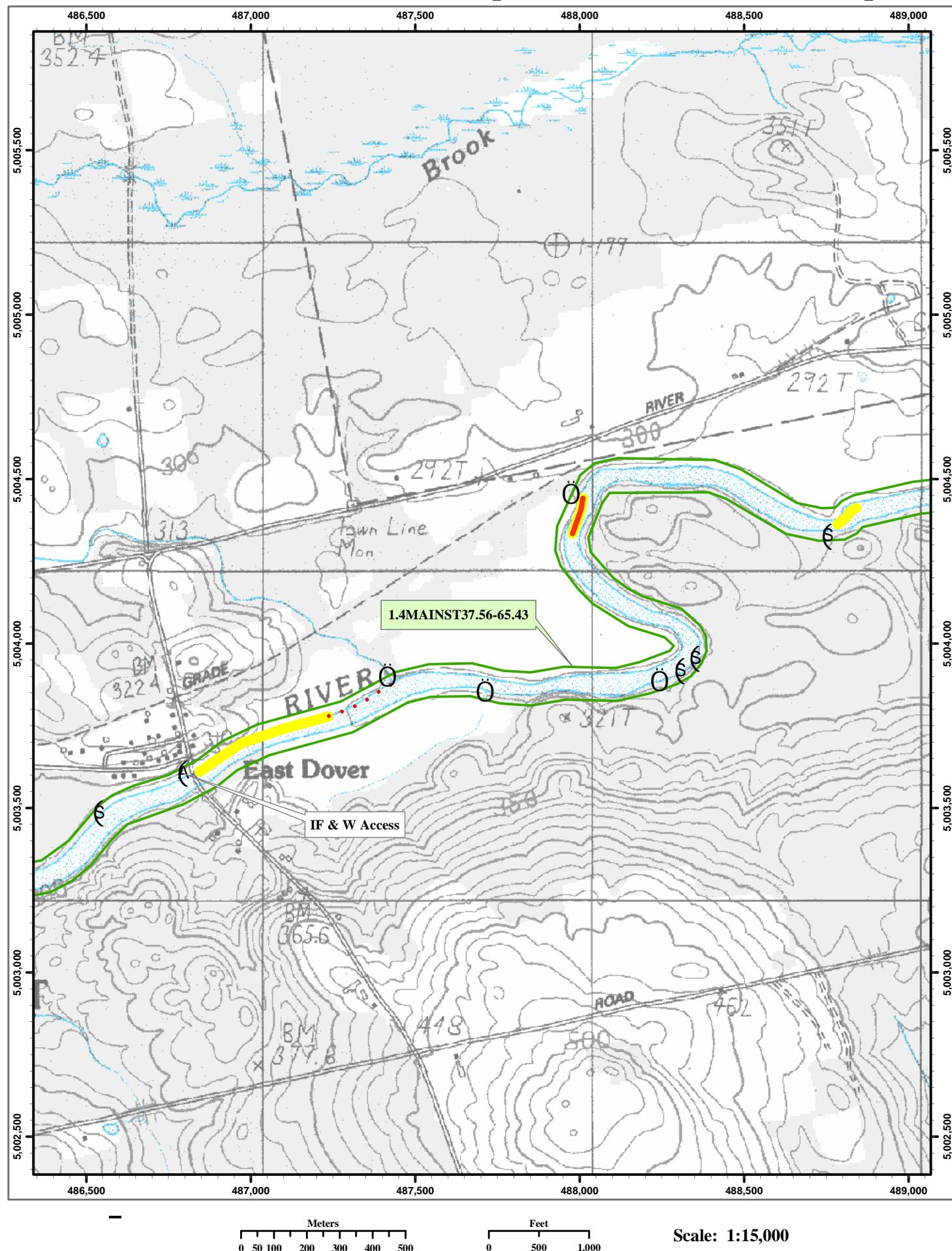
Map 97



Penobscot River

Piscataquis River

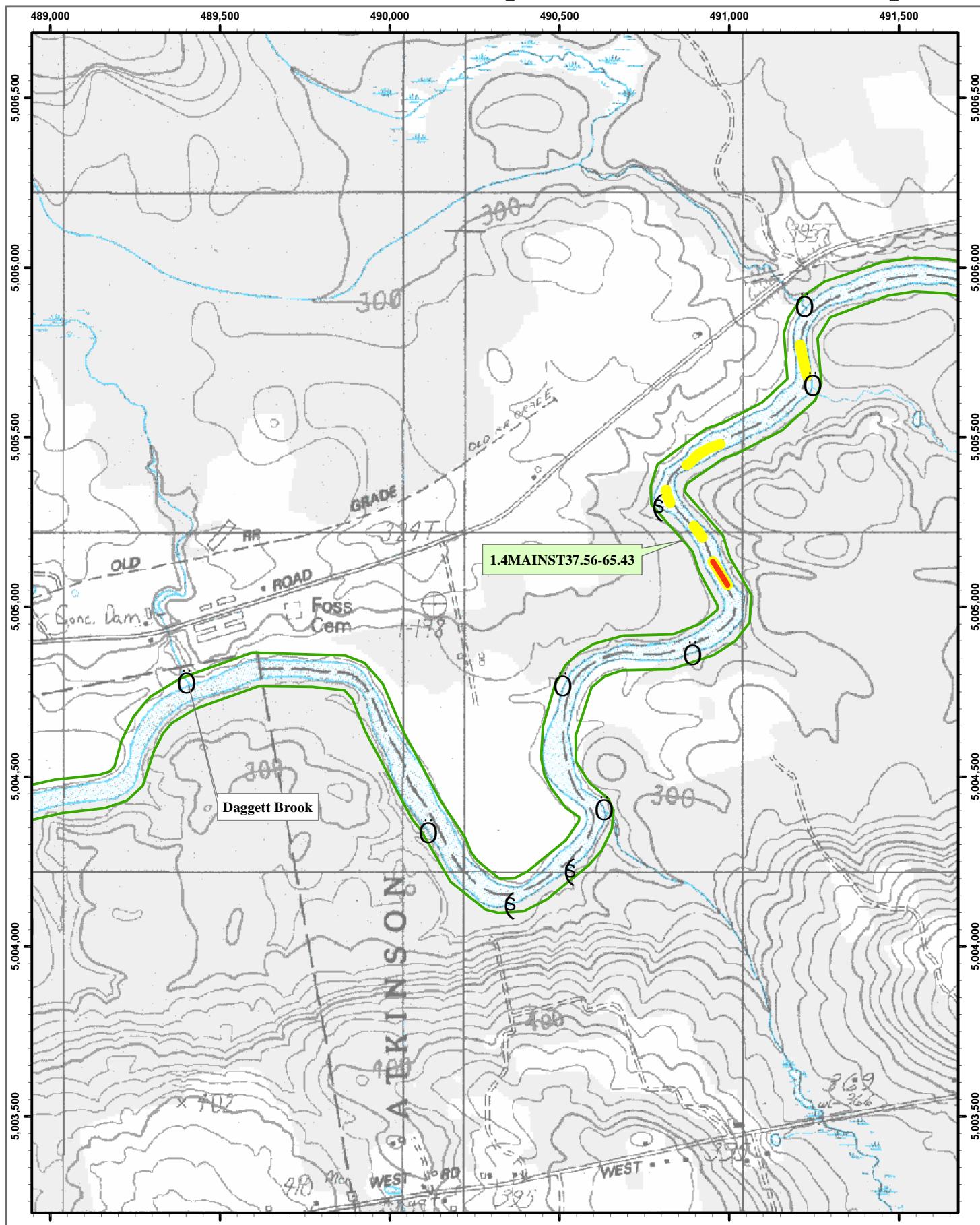
Map 98



Penobscot River

Piscataquis River

Map 99



Meters
0 50 100 200 300 400 500

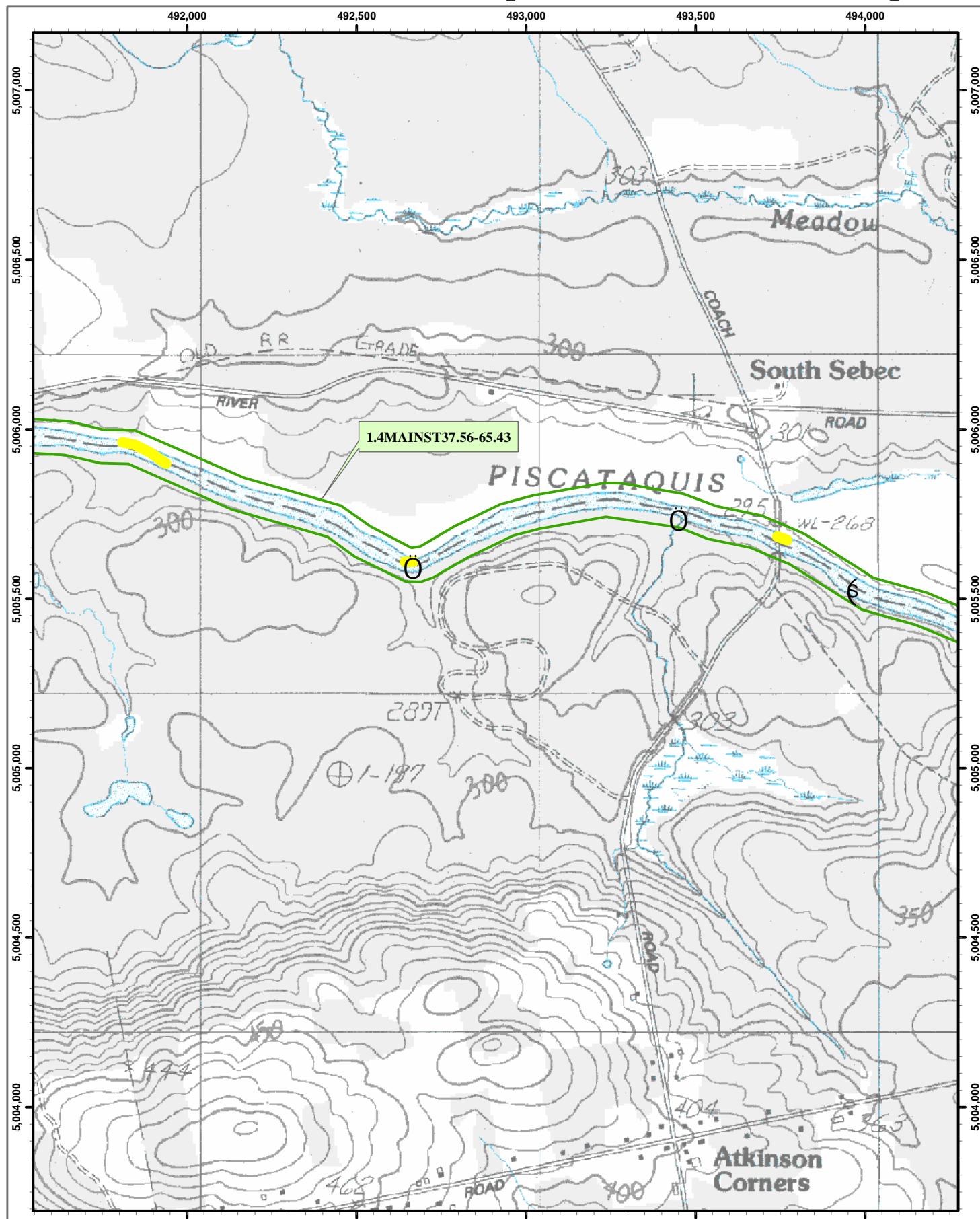
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

Map 100



Meters
0 50 100 200 300 400 500

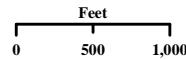
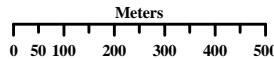
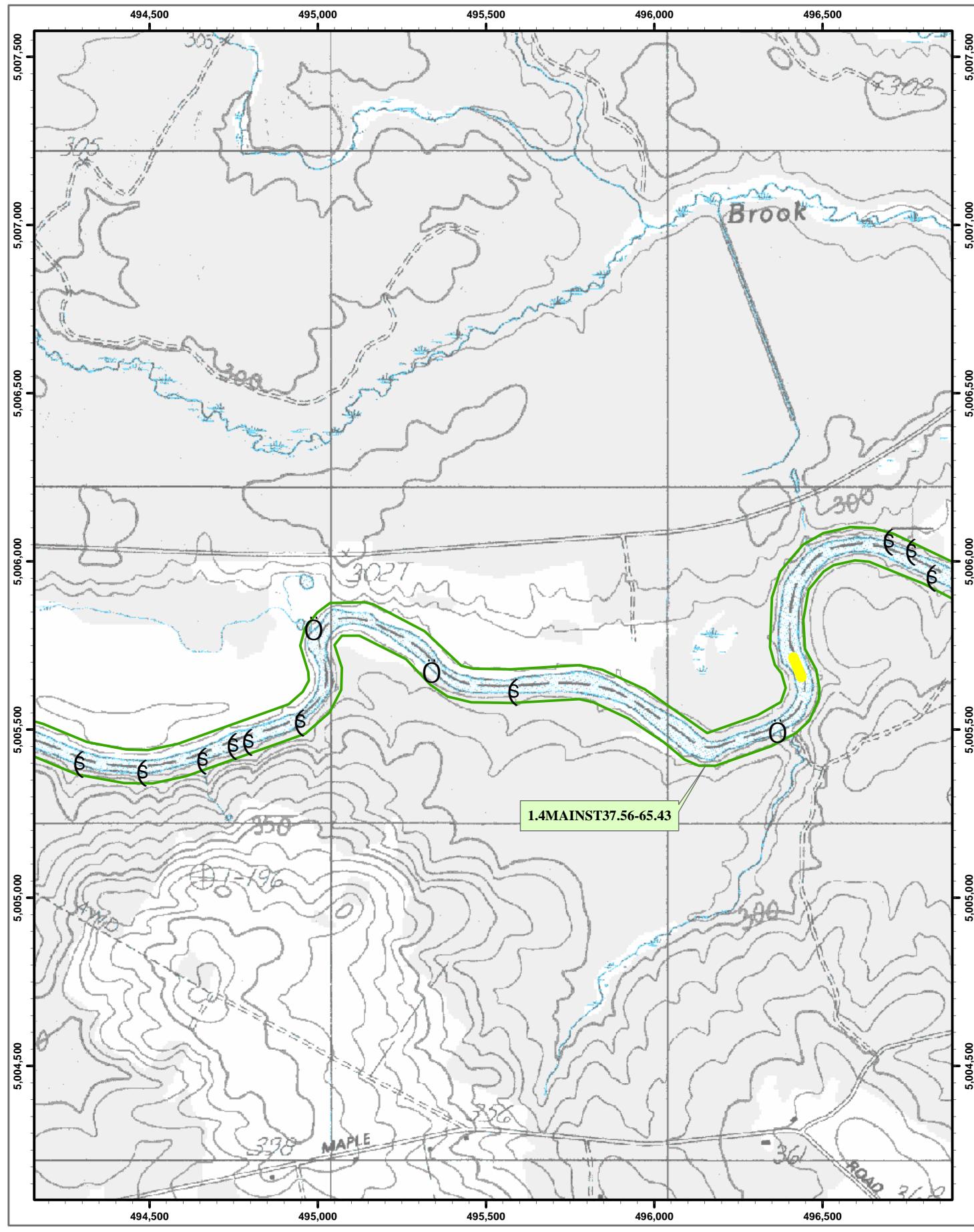
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

Map 101

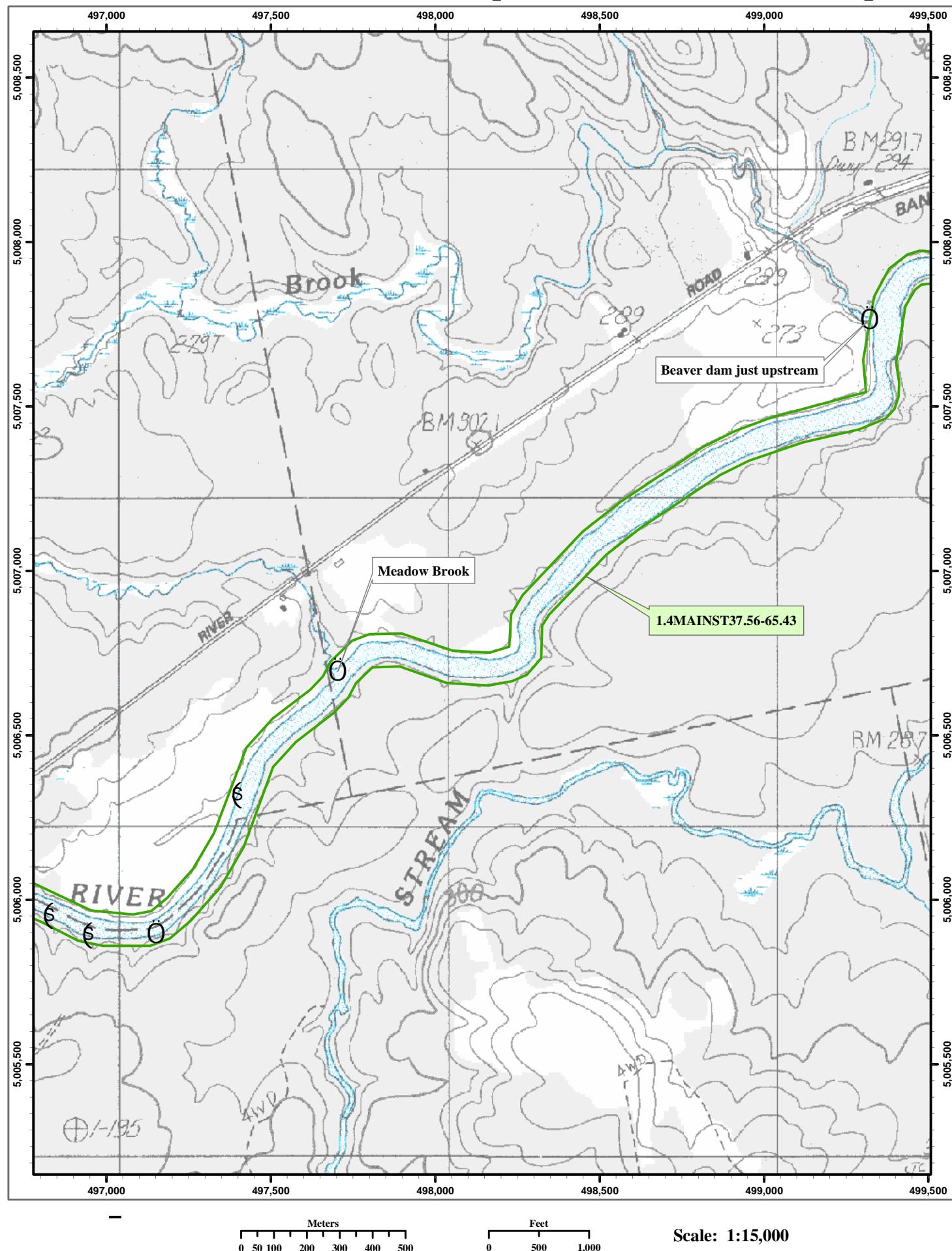


Scale: 1:15,000

Penobscot River

Piscataquis River

Map 102



Meters
0 50 100 200 300 400 500

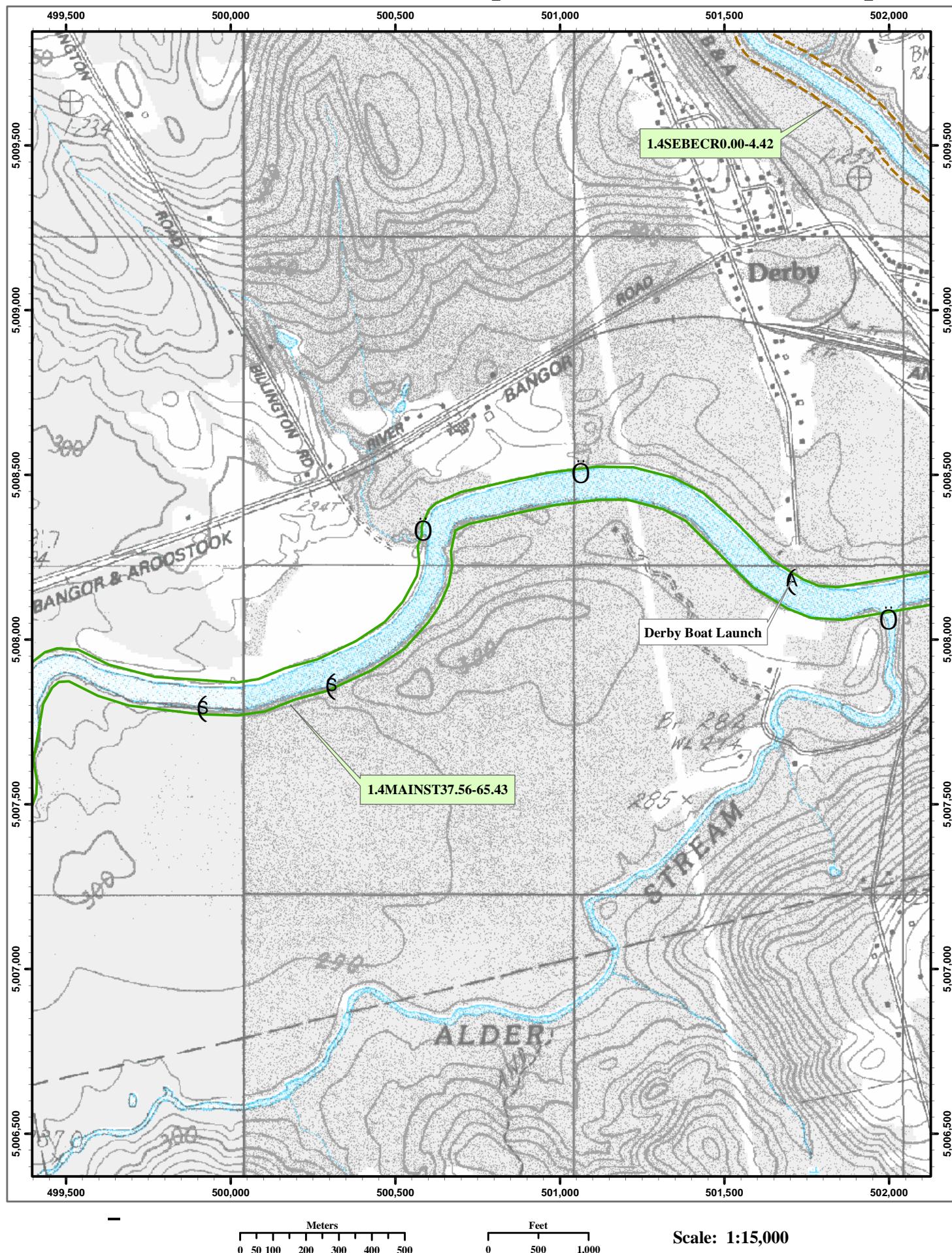
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

Map 103



Meters
0 50 100 200 300 400 500

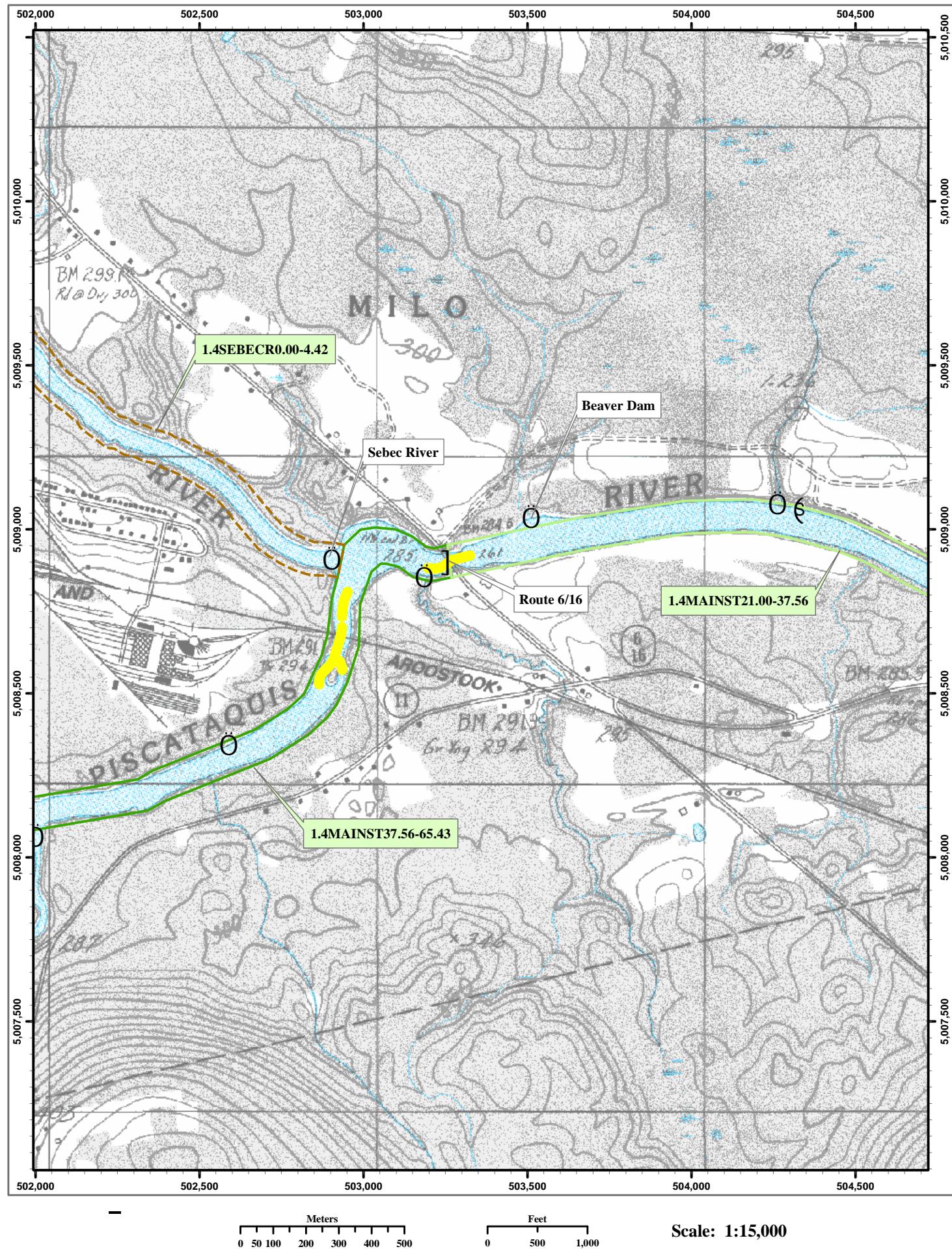
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

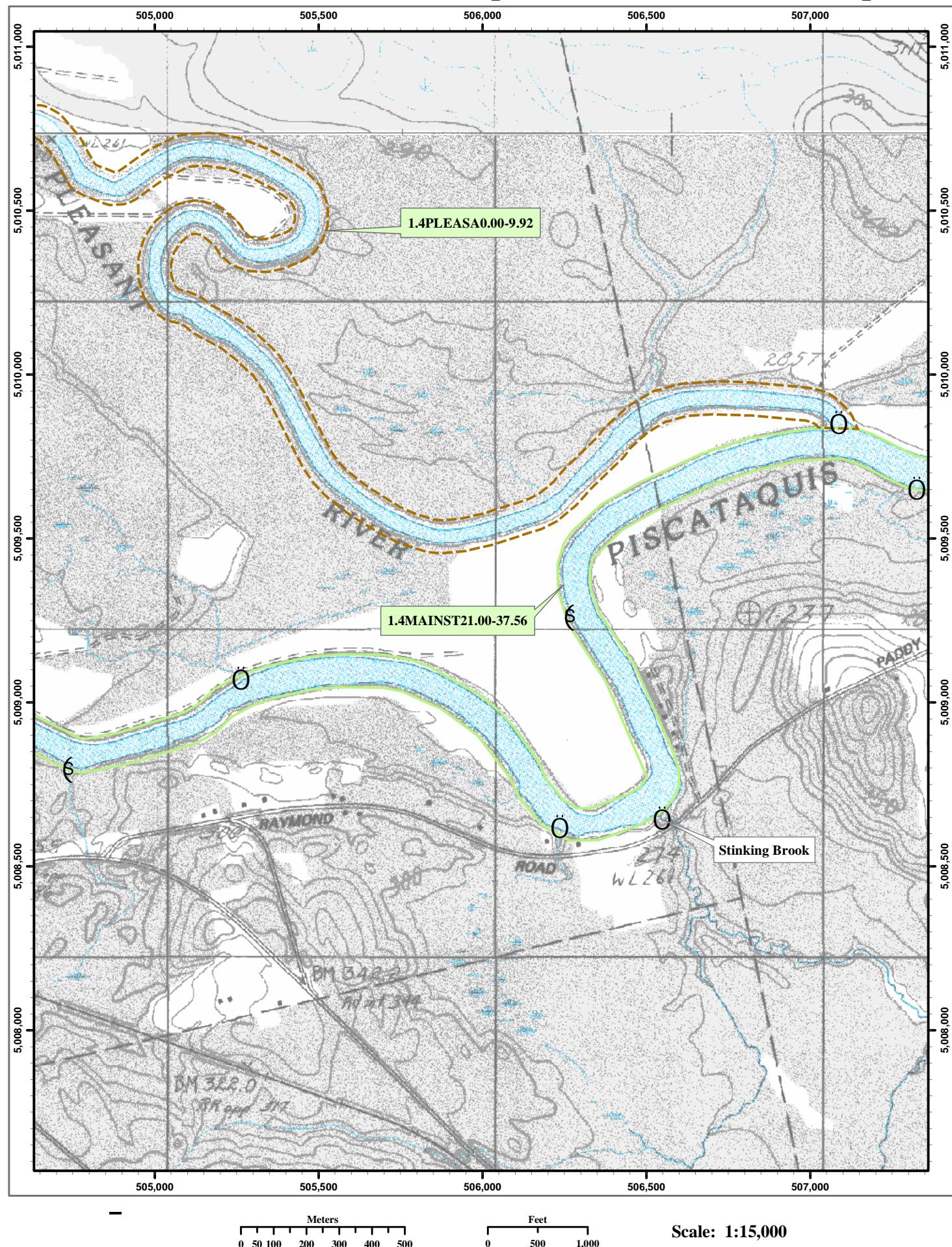
Map 104



Penobscot River

Piscataquis River

Map 105



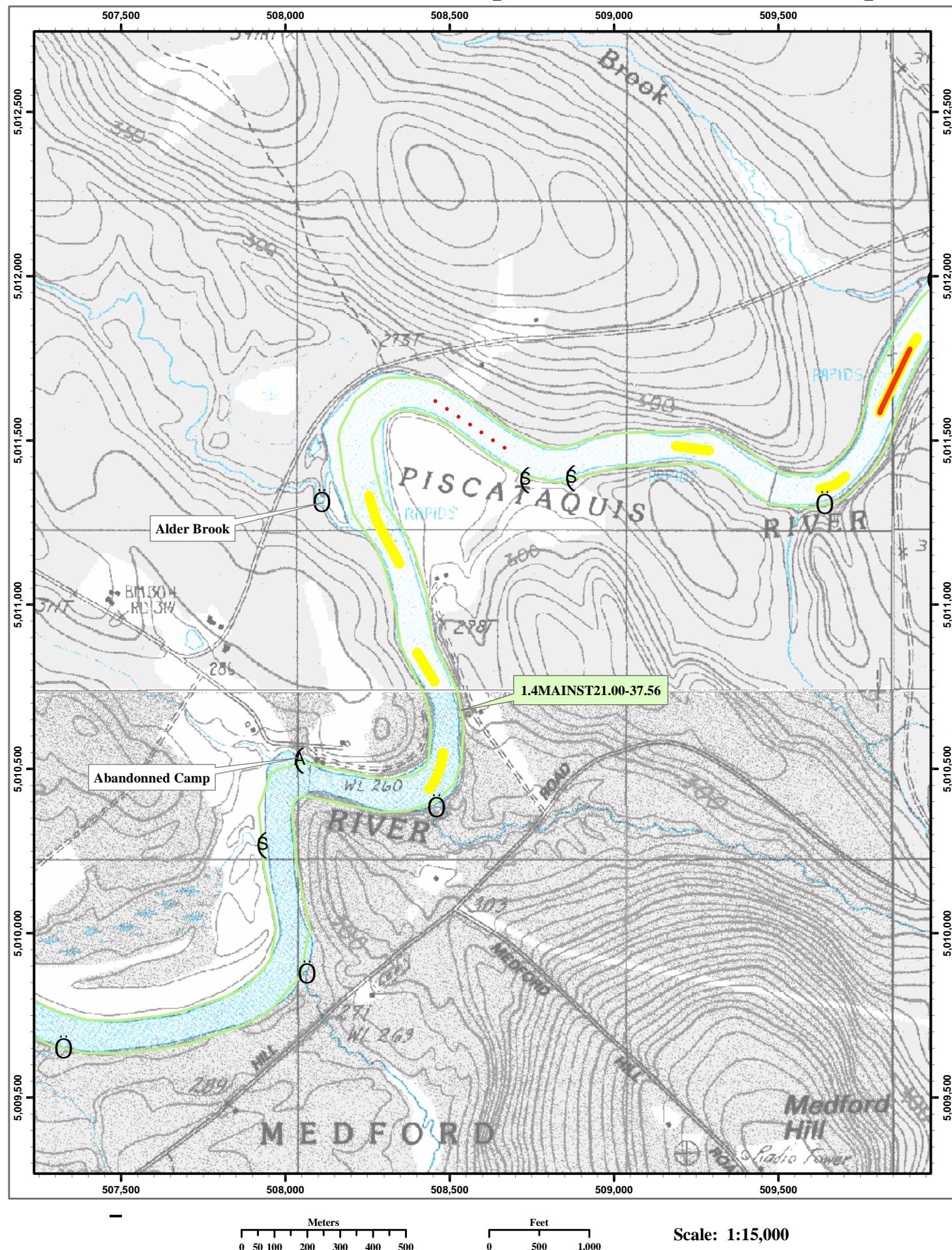
Scale: 1:15,000

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Penobscot River

Piscataquis River

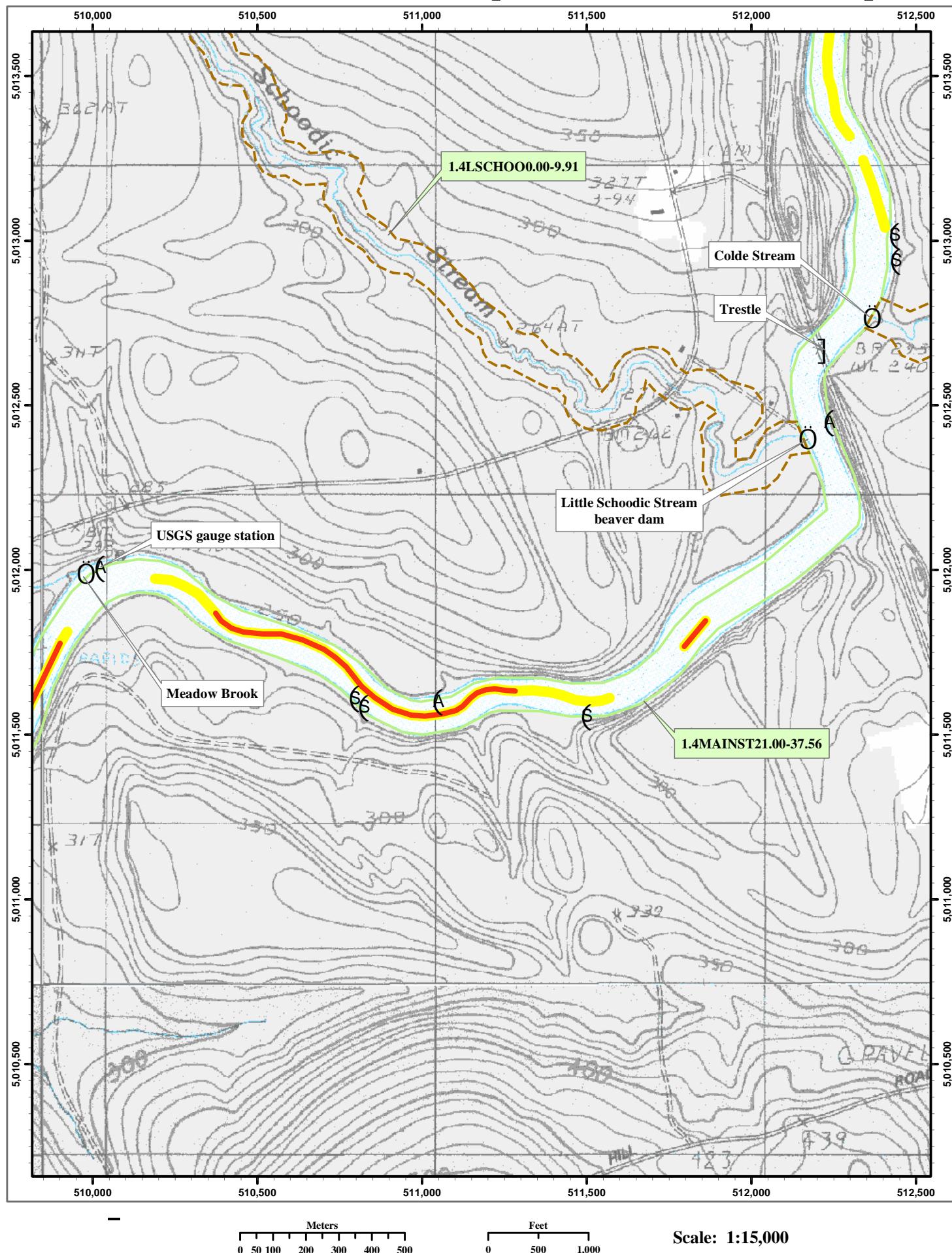
Map 106



Penobscot River

Piscataquis River

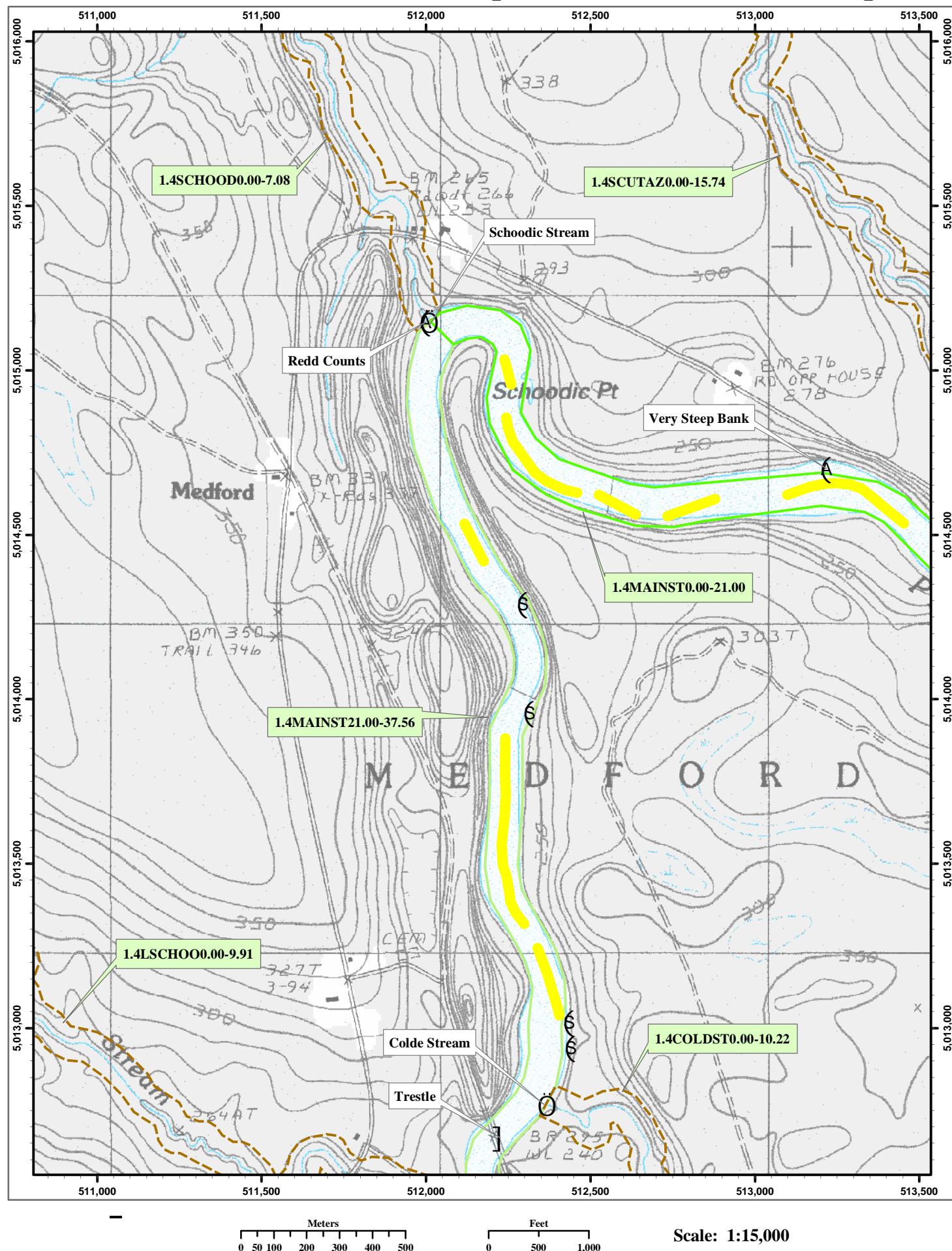
Map 107



Penobscot River

Piscataquis River

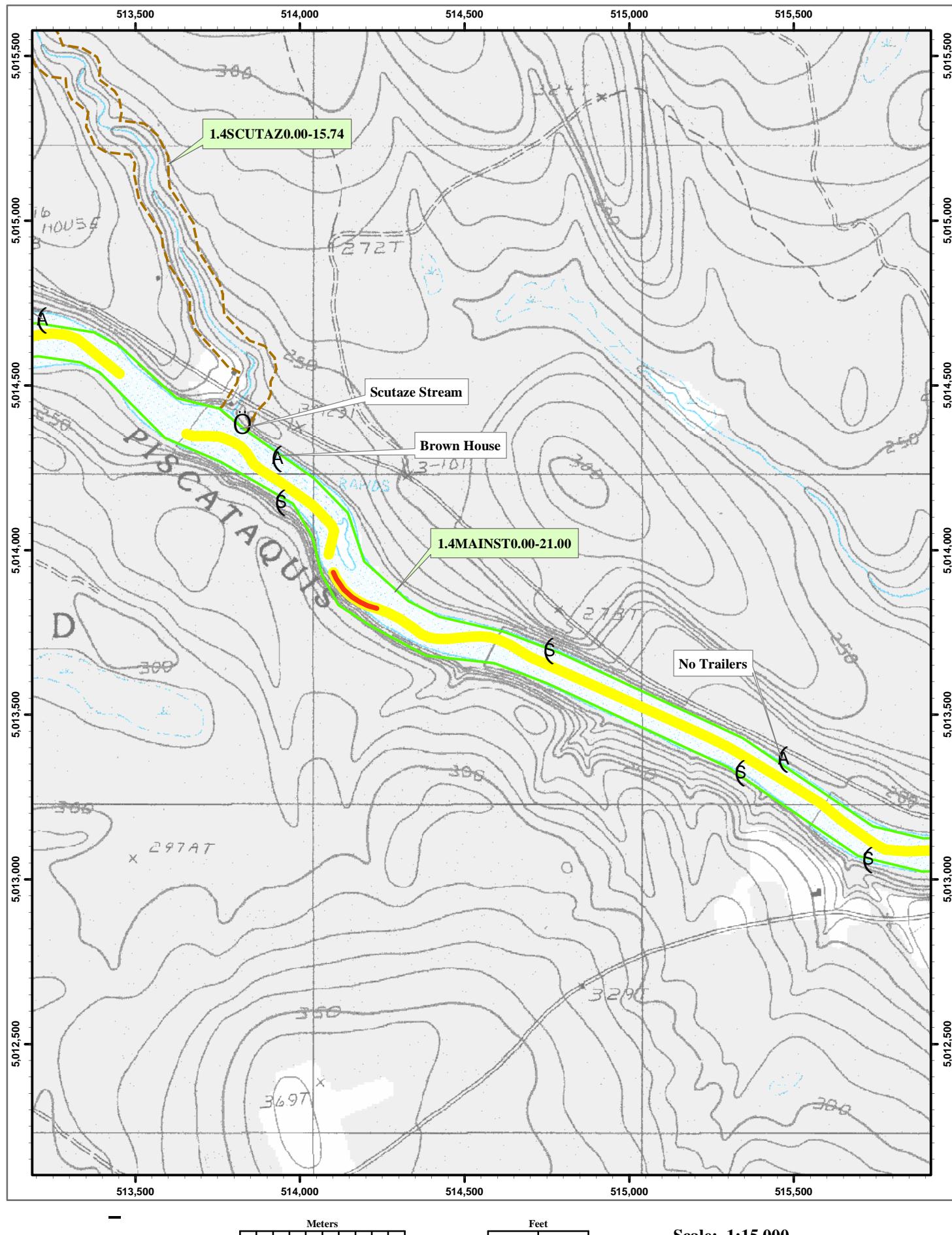
Map 108



Penobscot River

Piscataquis River

Map 109



A horizontal scale bar representing distance in meters. The bar is marked with numerical values at 0, 50, 100, 200, 300, 400, and 500. Above the bar, the word "Meters" is written in a bold, black font.

Feet



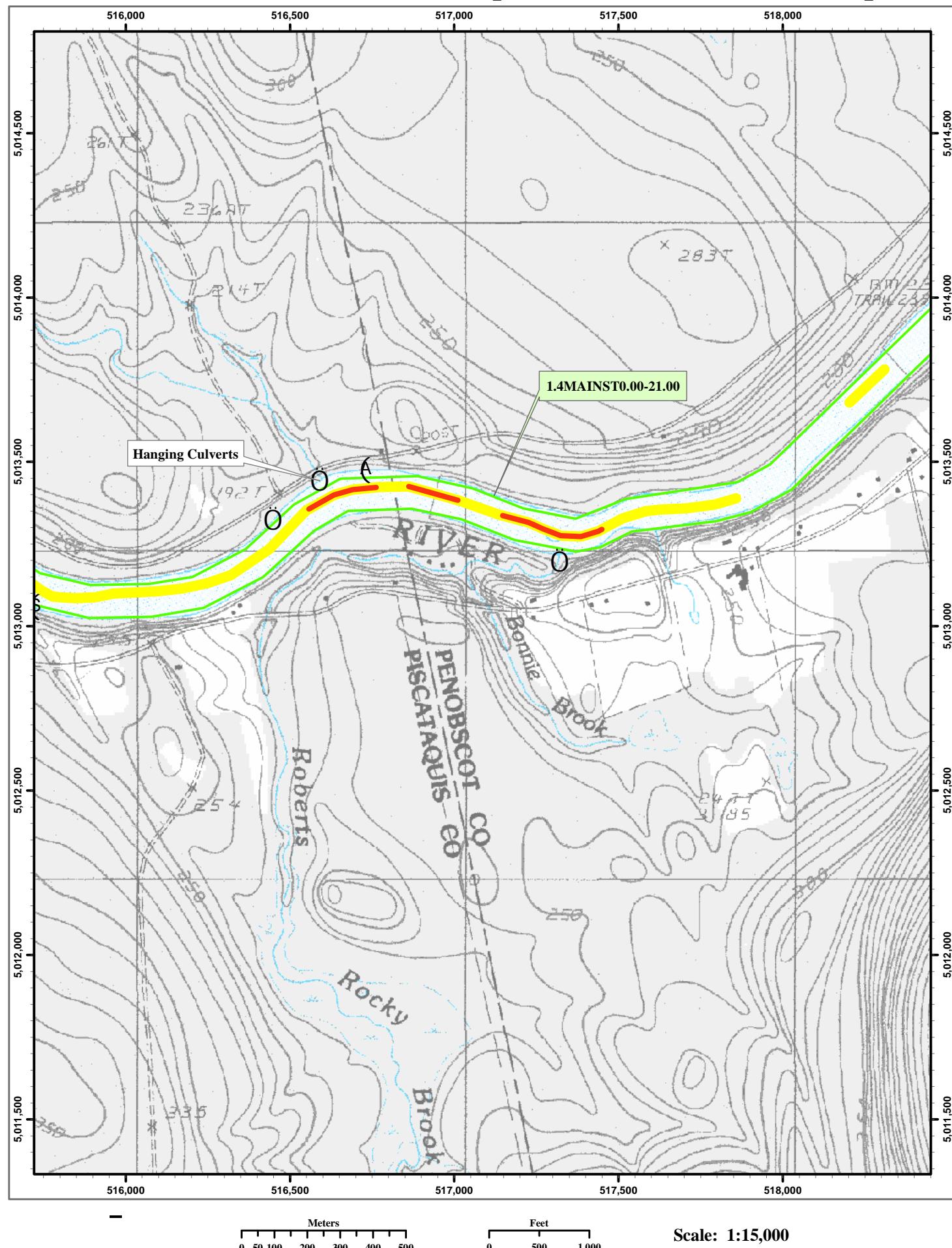
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

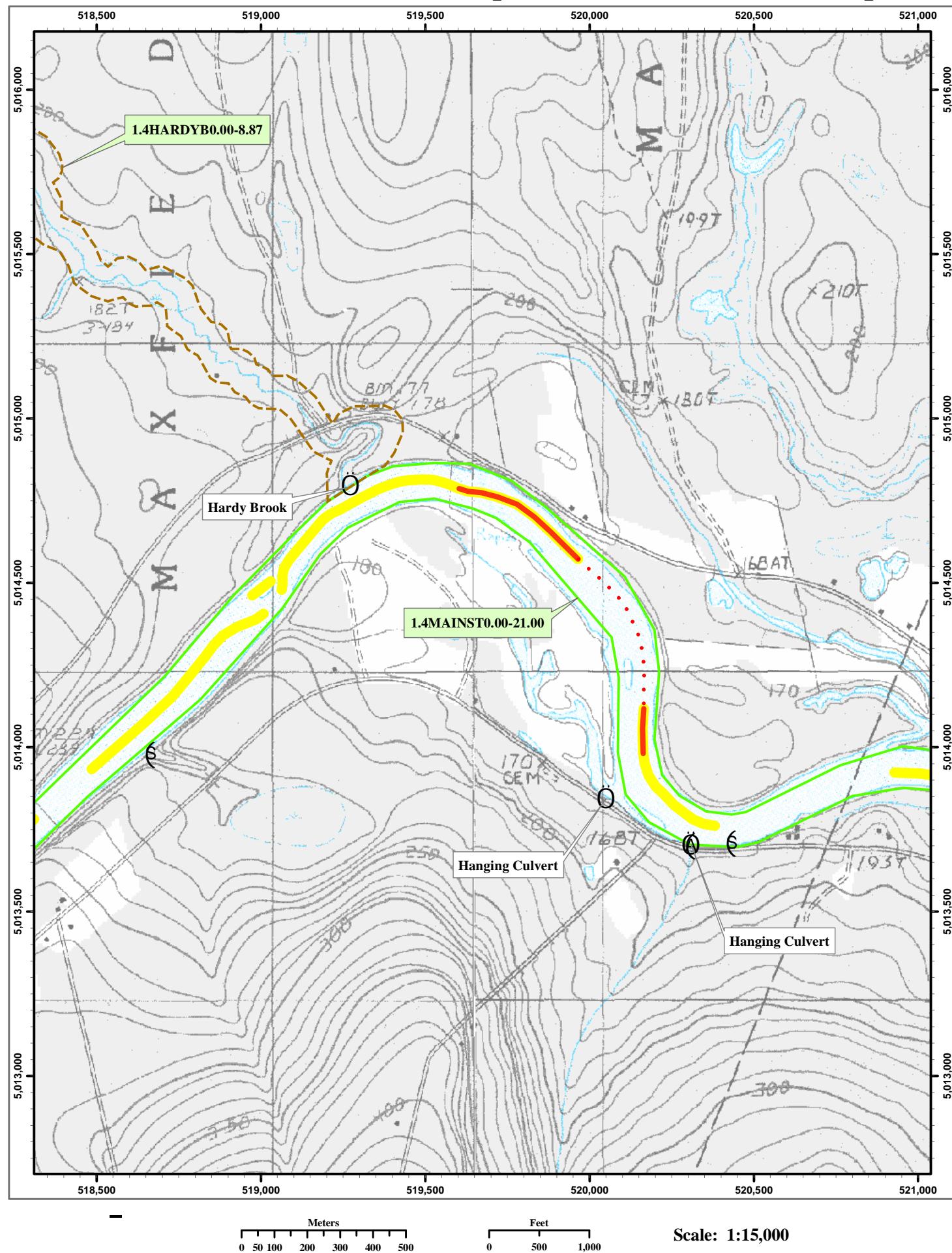
Map 110



Penobscot River

Piscataquis River

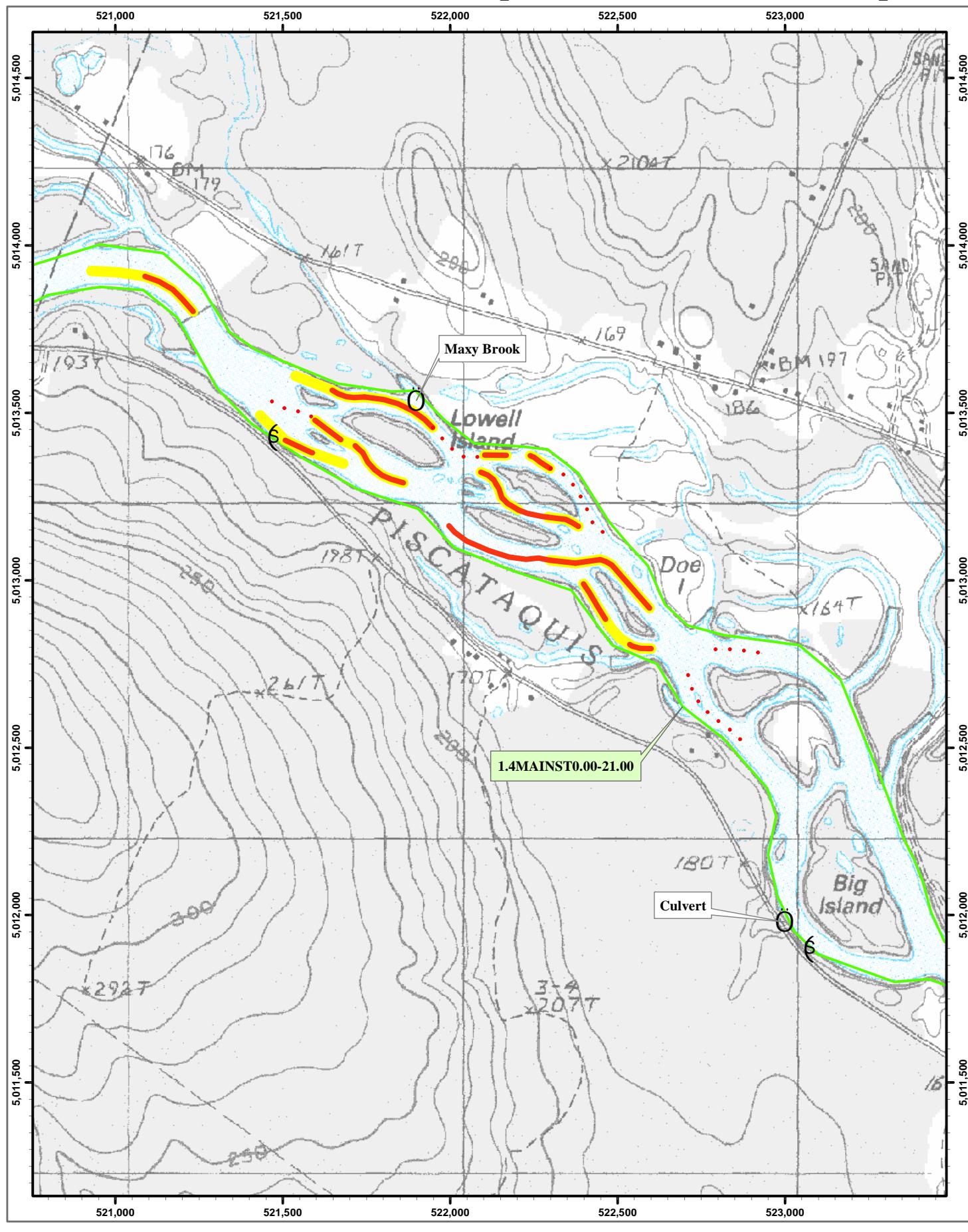
Map 111



Penobscot River

Piscataquis River

Map 112



Meters
0 50 100 200 300 400 500

Feet
0 500 1,000

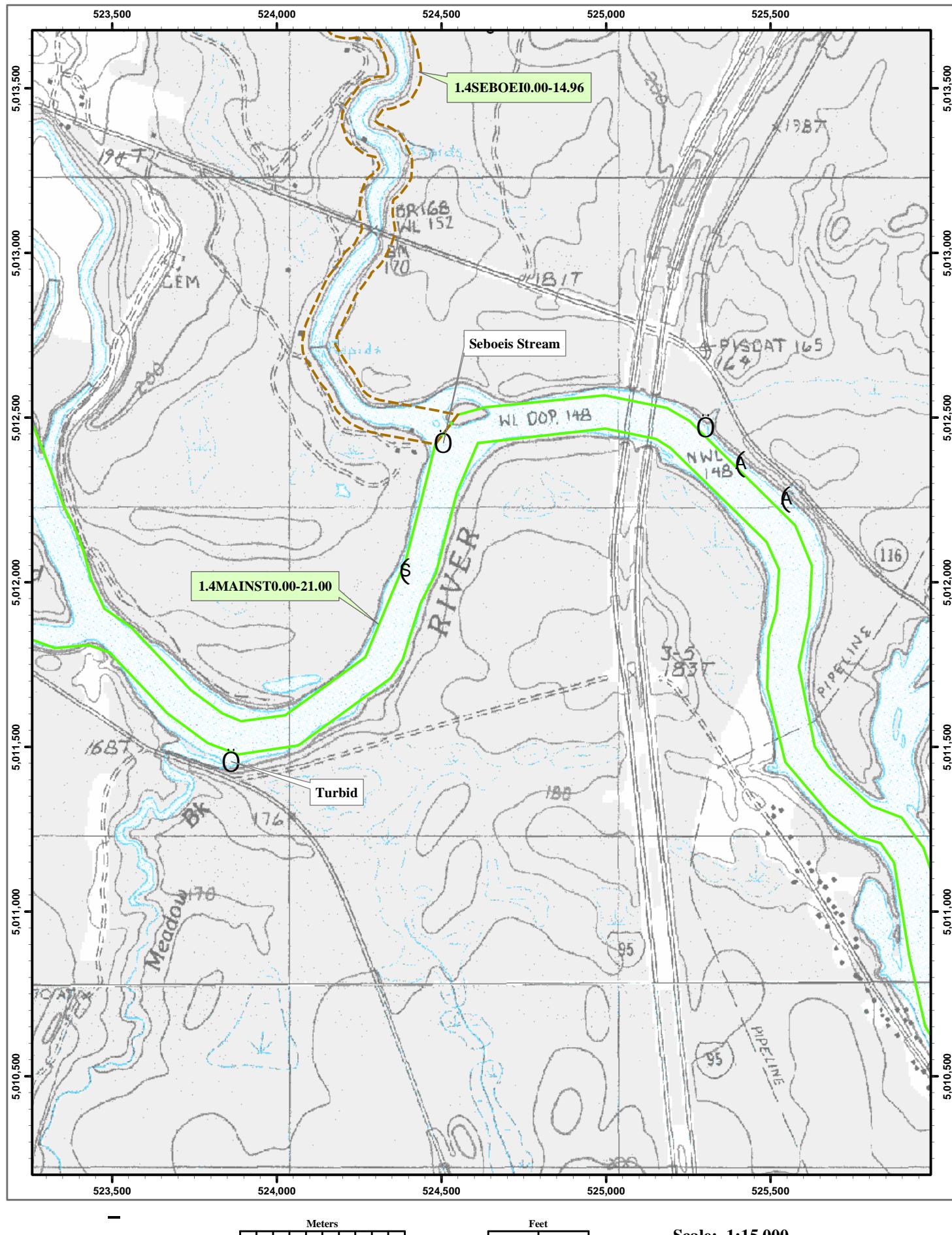
Scale: 1:15,000

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Penobscot River

Piscataquis River

Map 113



A horizontal scale bar representing distance in meters. The word "Meters" is centered above the bar. Below the bar, numerical labels are placed at 0, 50, 100, 200, 300, 400, and 500. There are also unlabeled tick marks between each labeled value, indicating increments of 50 meters.

Feet



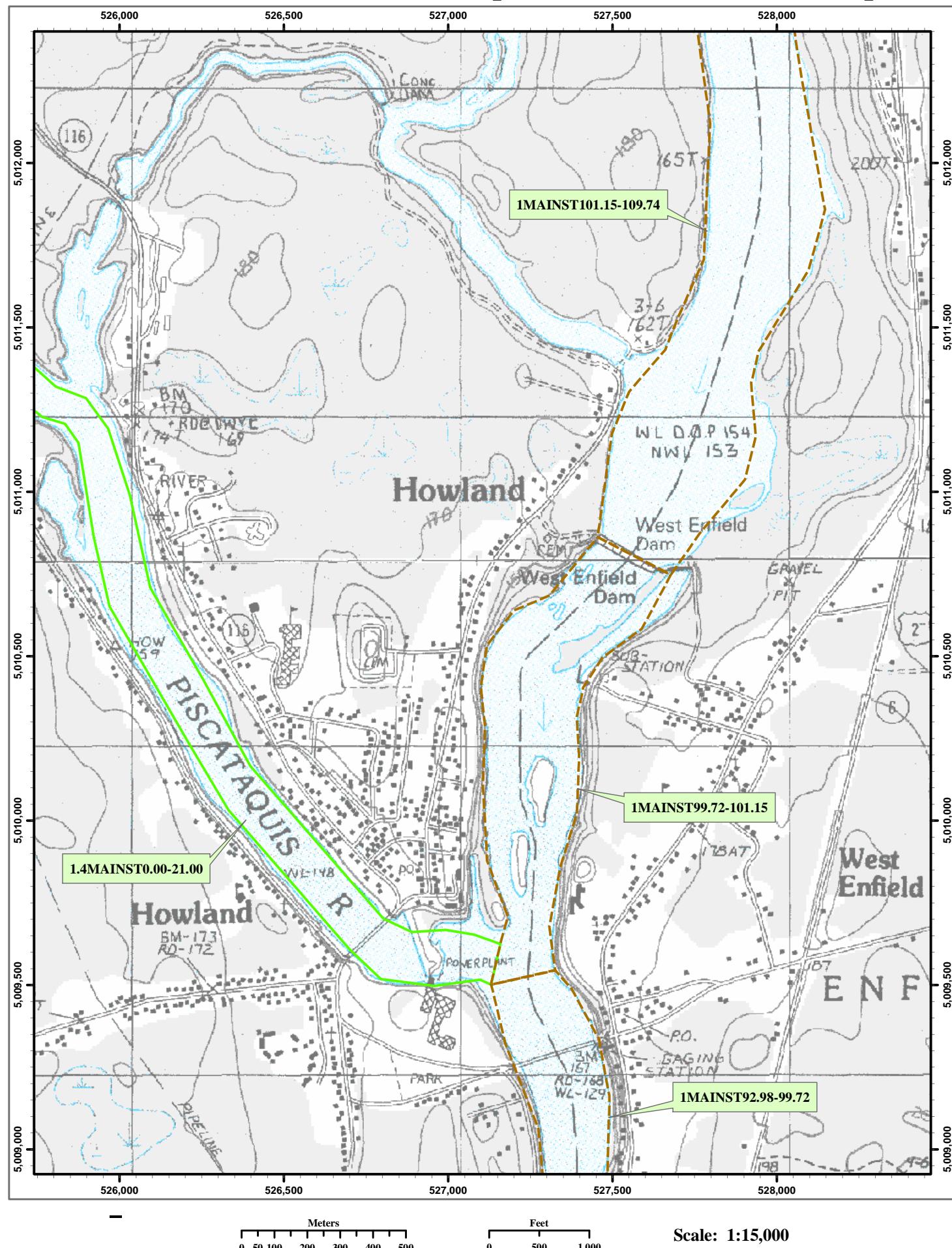
0 500 1,000

Scale: 1:15,000

Penobscot River

Piscataquis River

Map 114



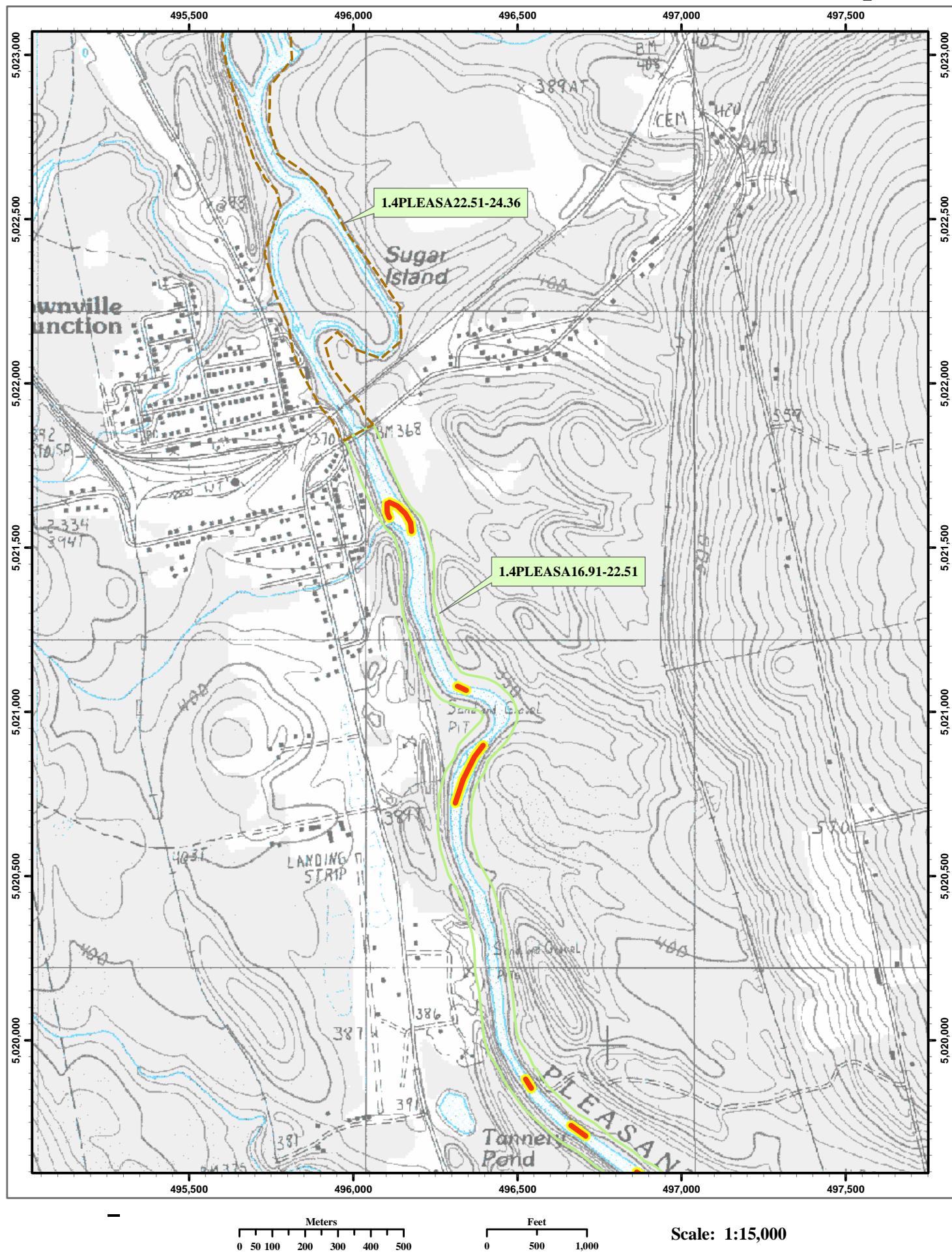
Scale: 1:15,000

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Penobscot River

Pleasant River

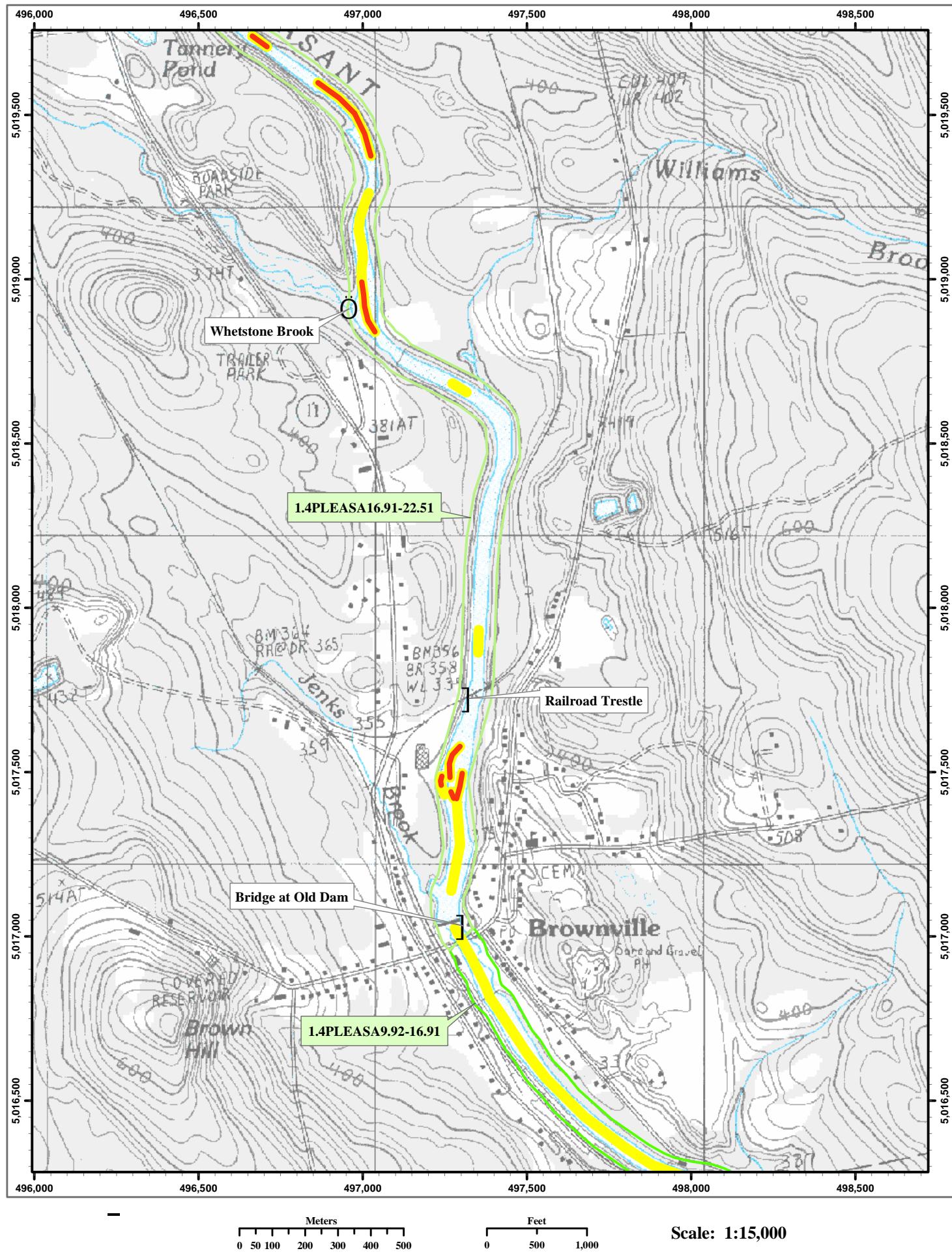
Map 115



Penobscot River

Pleasant River

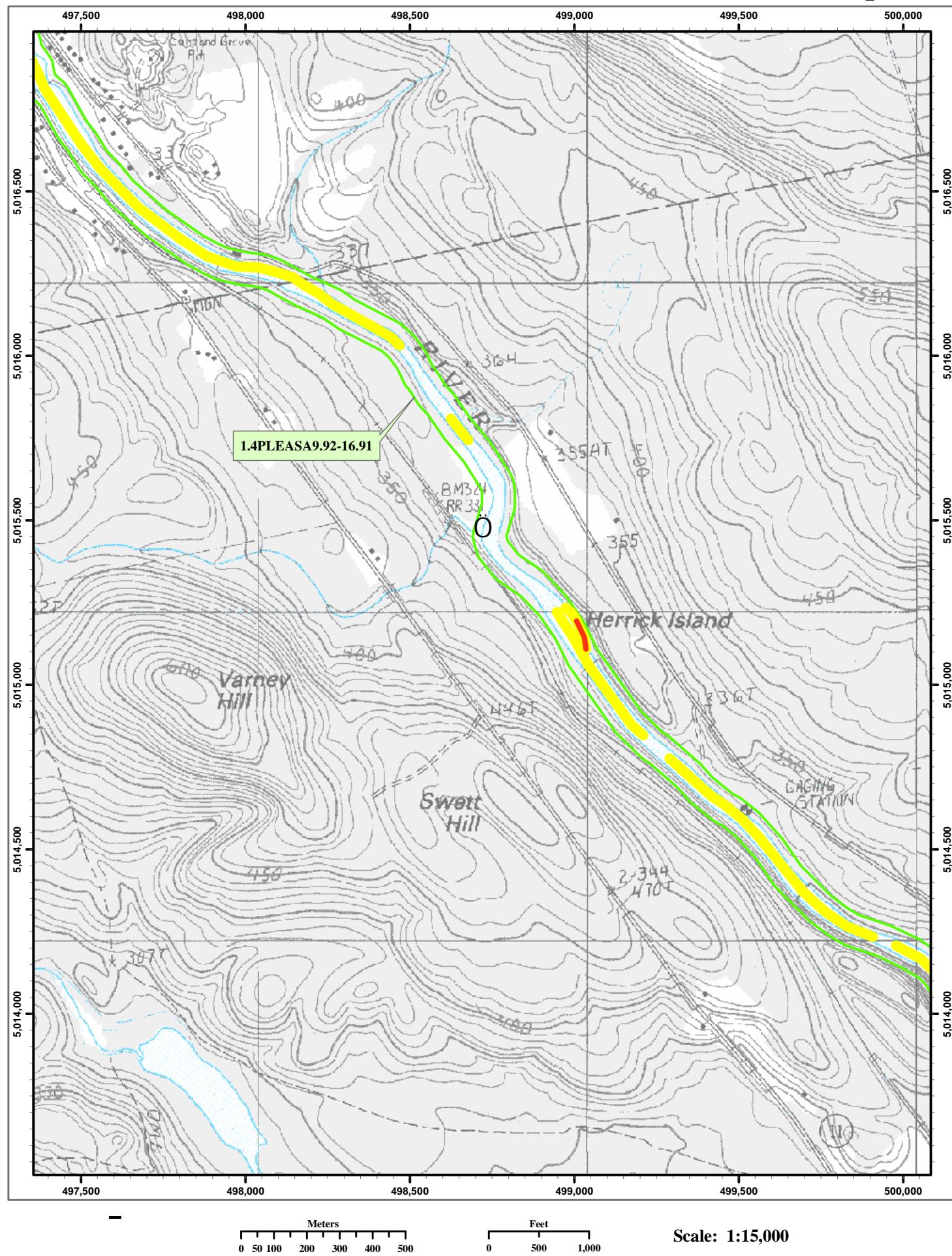
Map 116



Penobscot River

Pleasant River

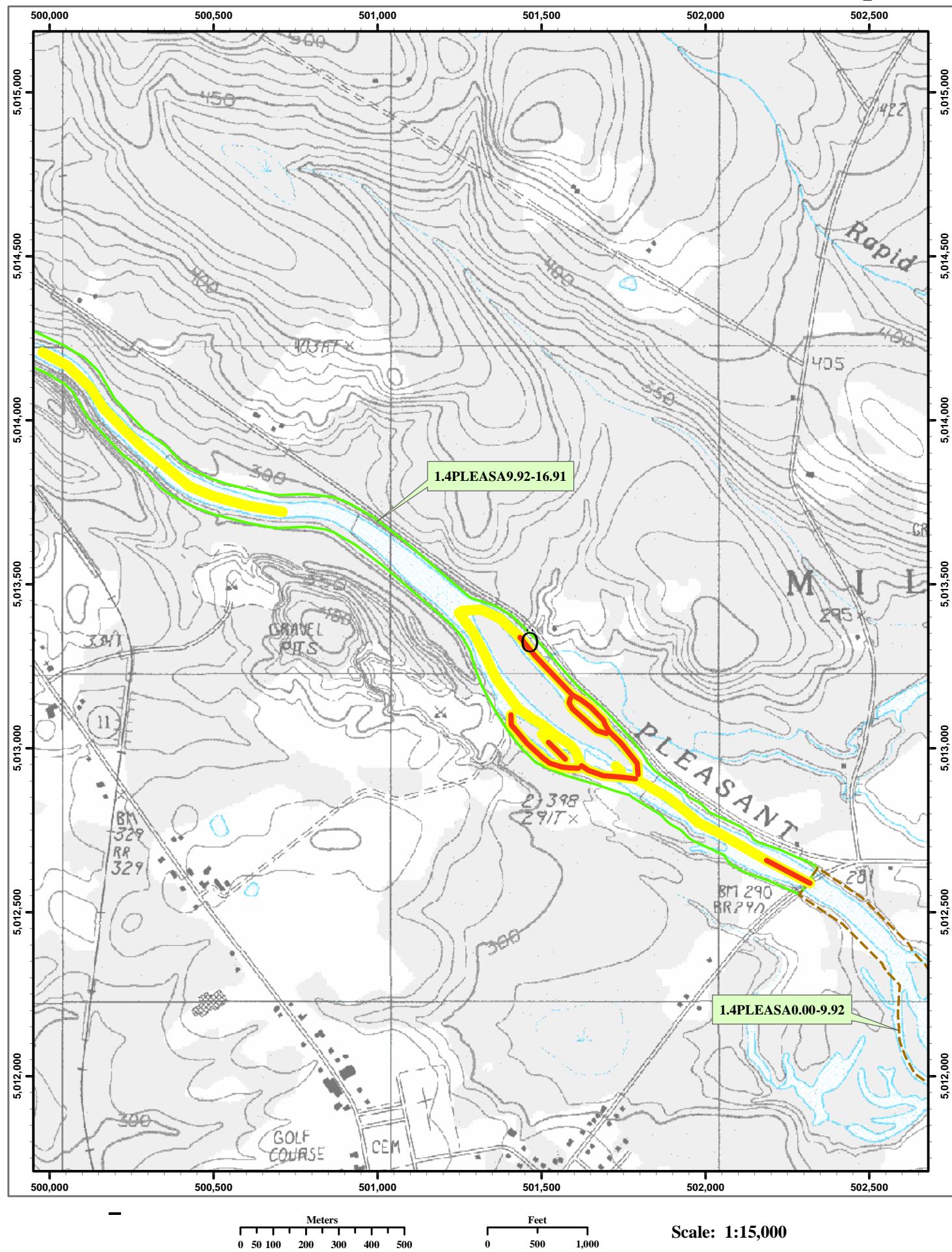
Map 117



Penobscot River

Pleasant River

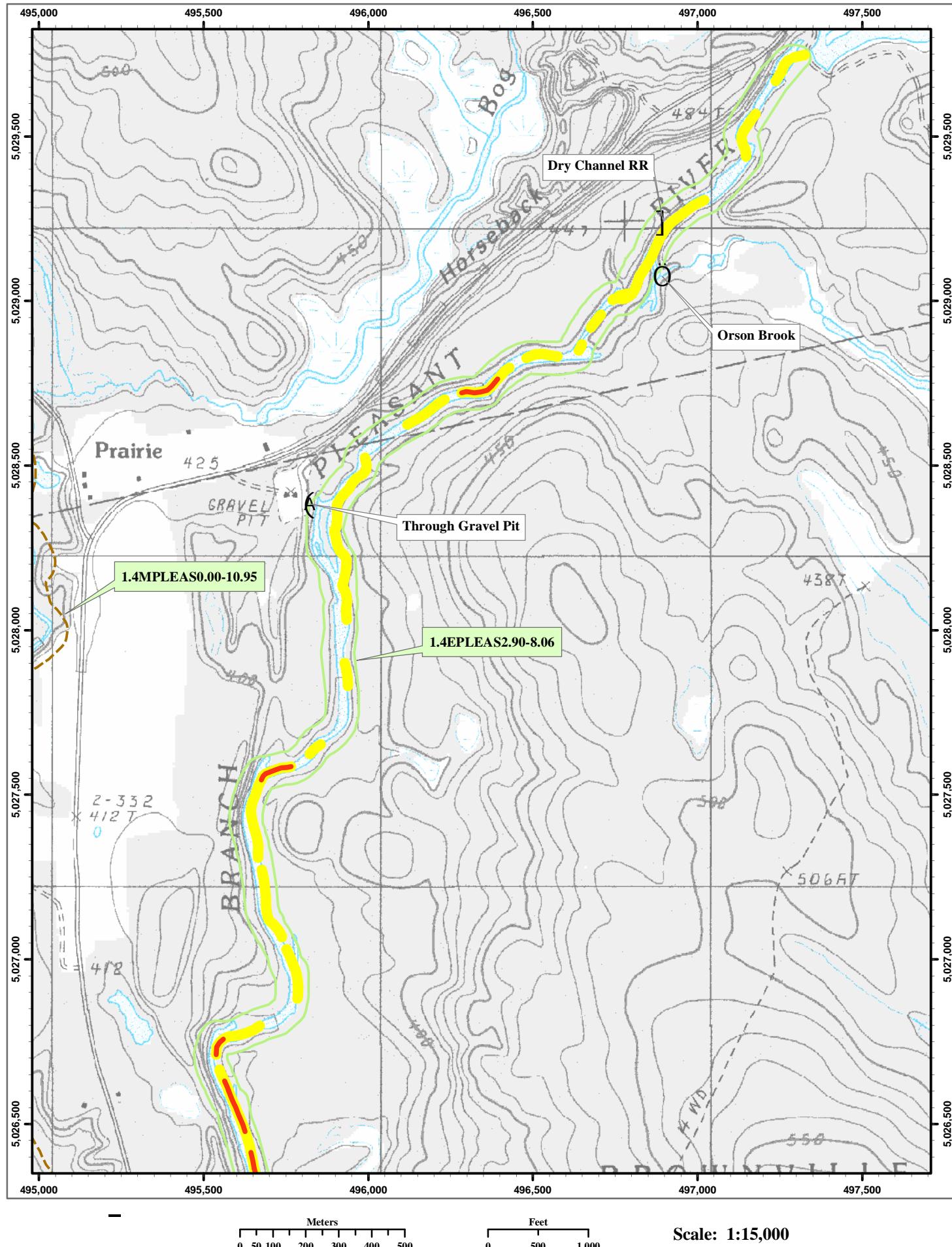
Map 118



Penobscot River

East Branch Pleasant River

Map 119

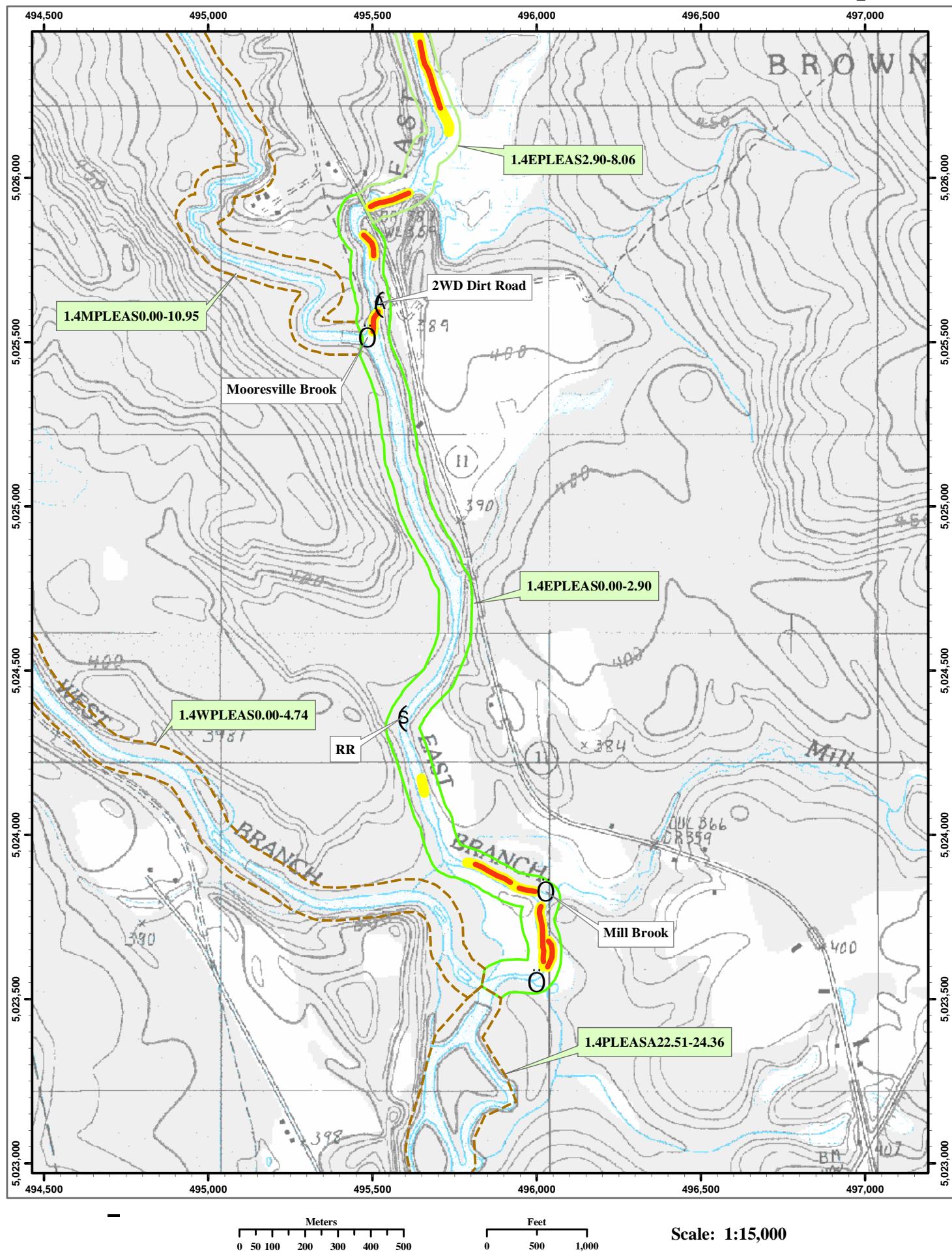


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Penobscot River

East Branch Pleasant River

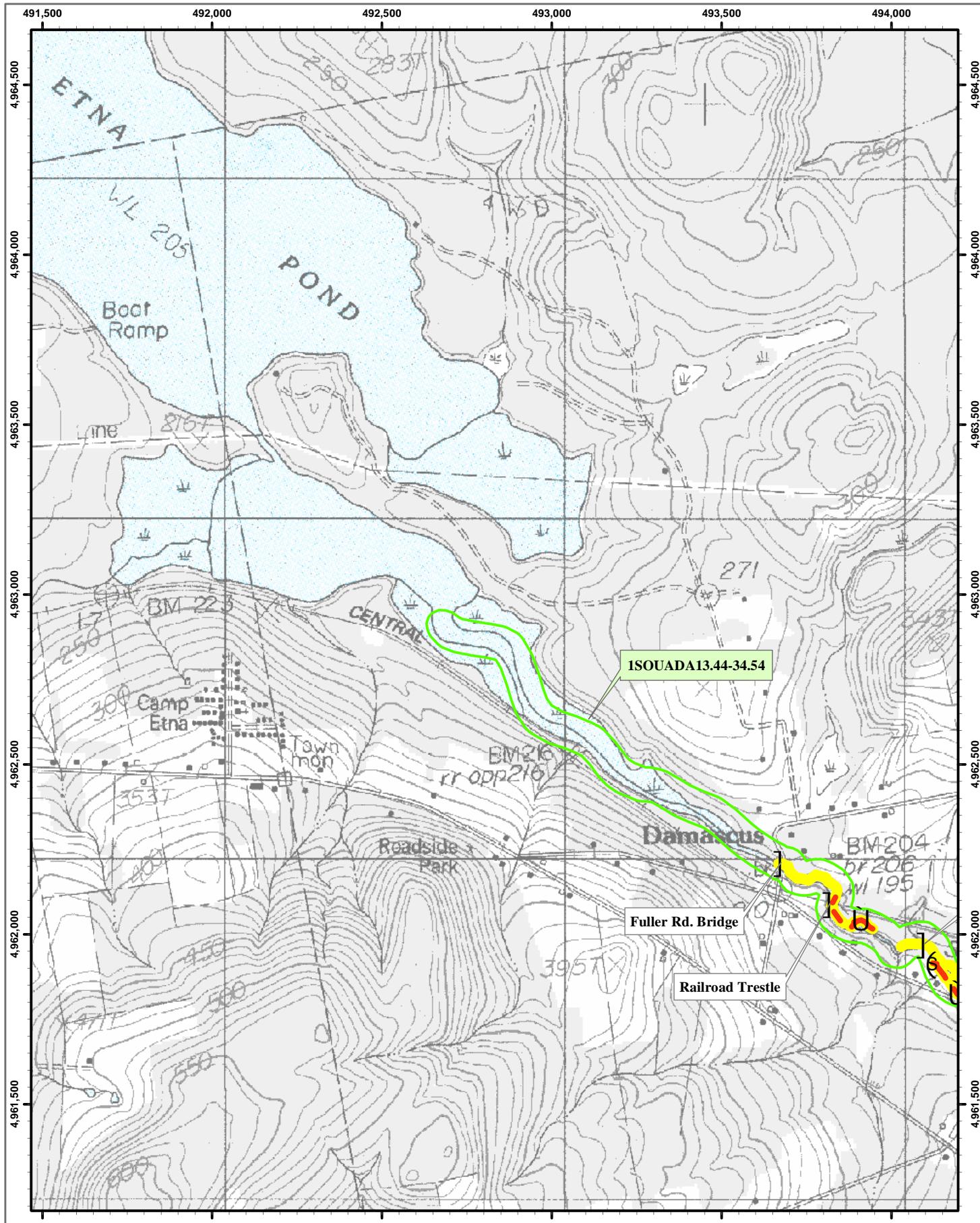
Map 120



Penobscot River

Souadabscook Stream

Map 121



Meters
0 50 100 200 300 400 500

Feet
0 500 1,000

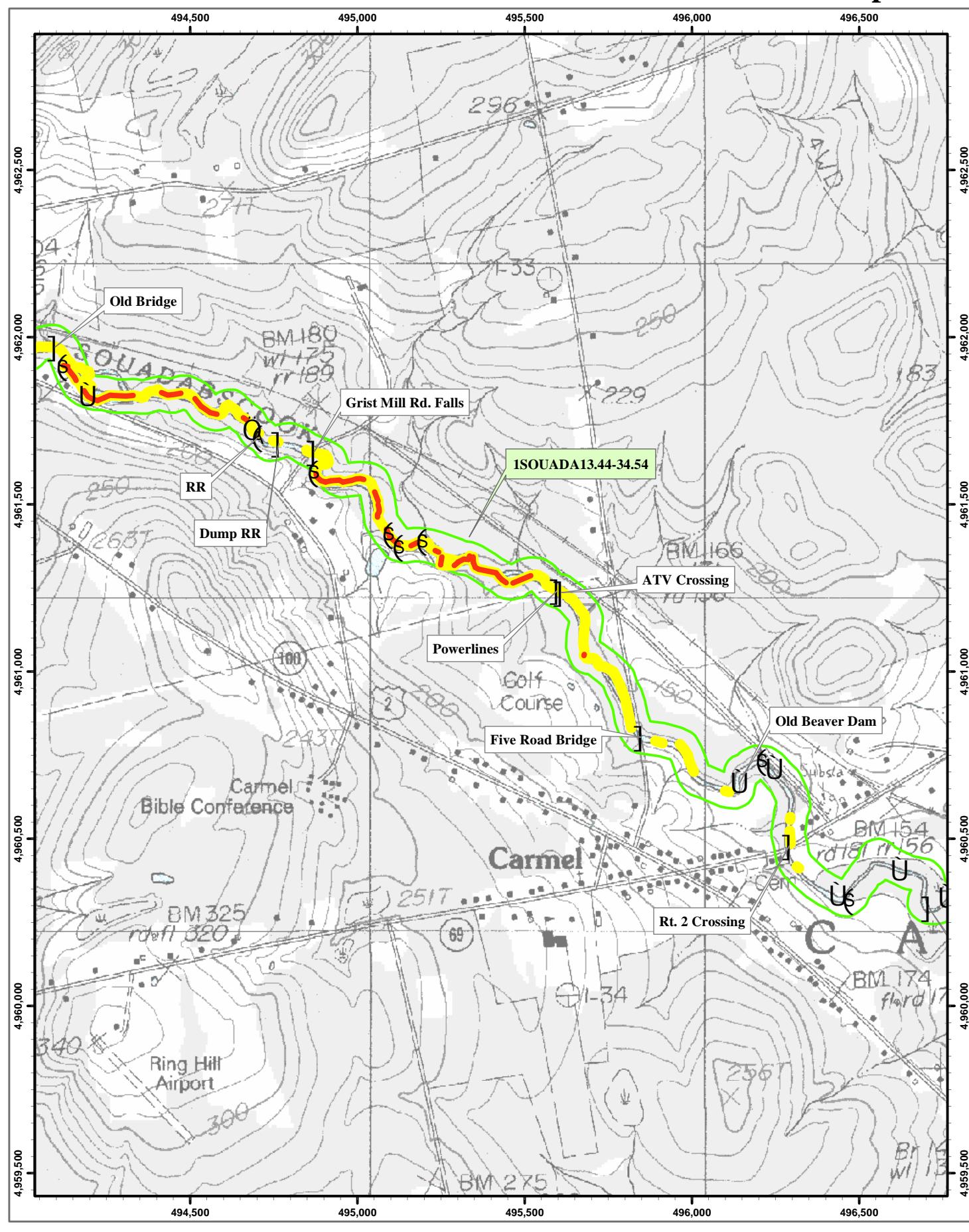
Scale: 1:15,000

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Penobscot River

Souadabscook Stream

Map 122



Meters
0 50 100 200 300 400 500

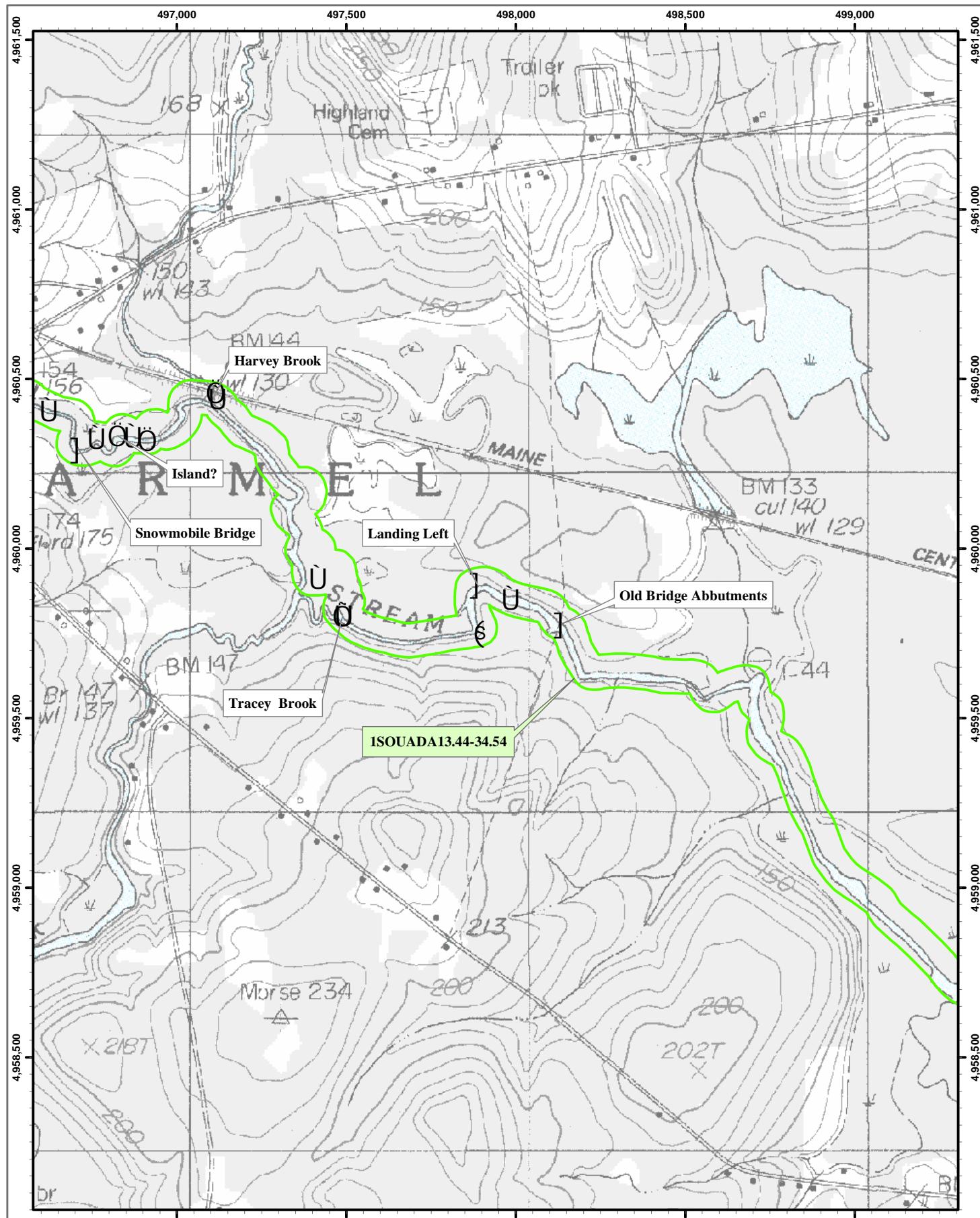
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Souadabscook Stream

Map 123



Meters
0 50 100 200 300 400 500

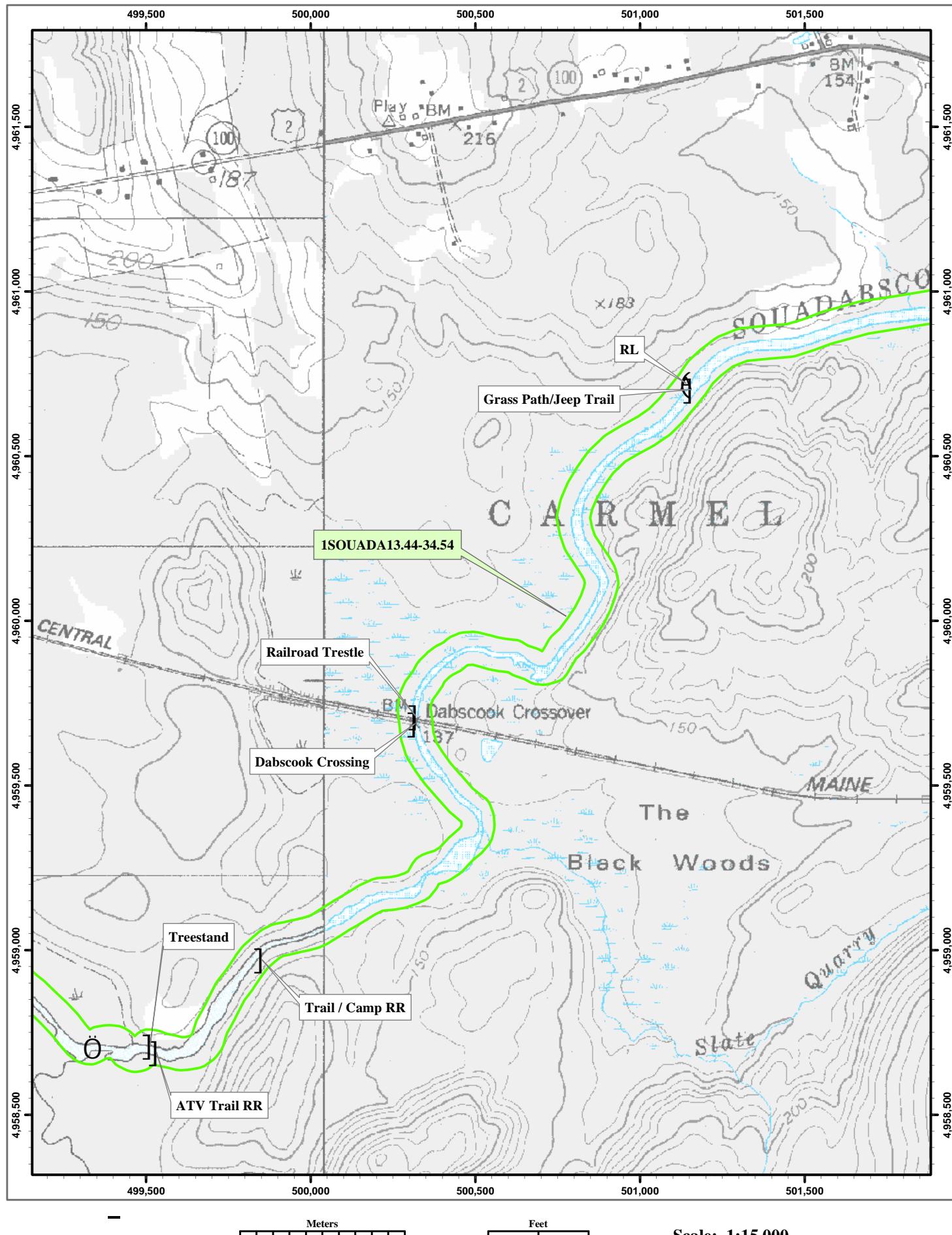
Feet
0 500 1,000

Scale: 1:15,000

Penobscot River

Souadabscook Stream

Map 124



Meters

Feet



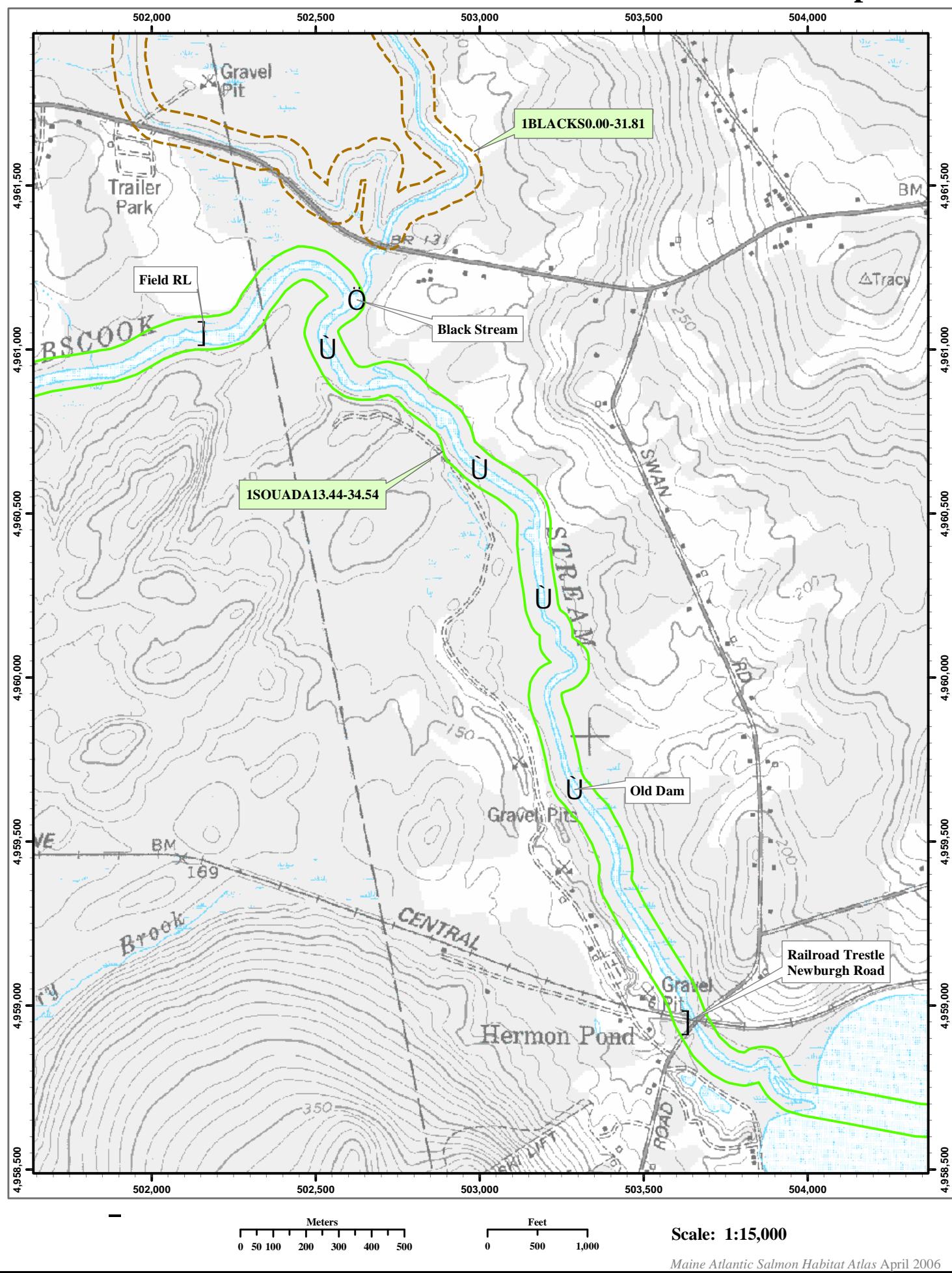
0 500 1,000

Scale: 1:15,000

Penobscot River

Souadabscook Stream

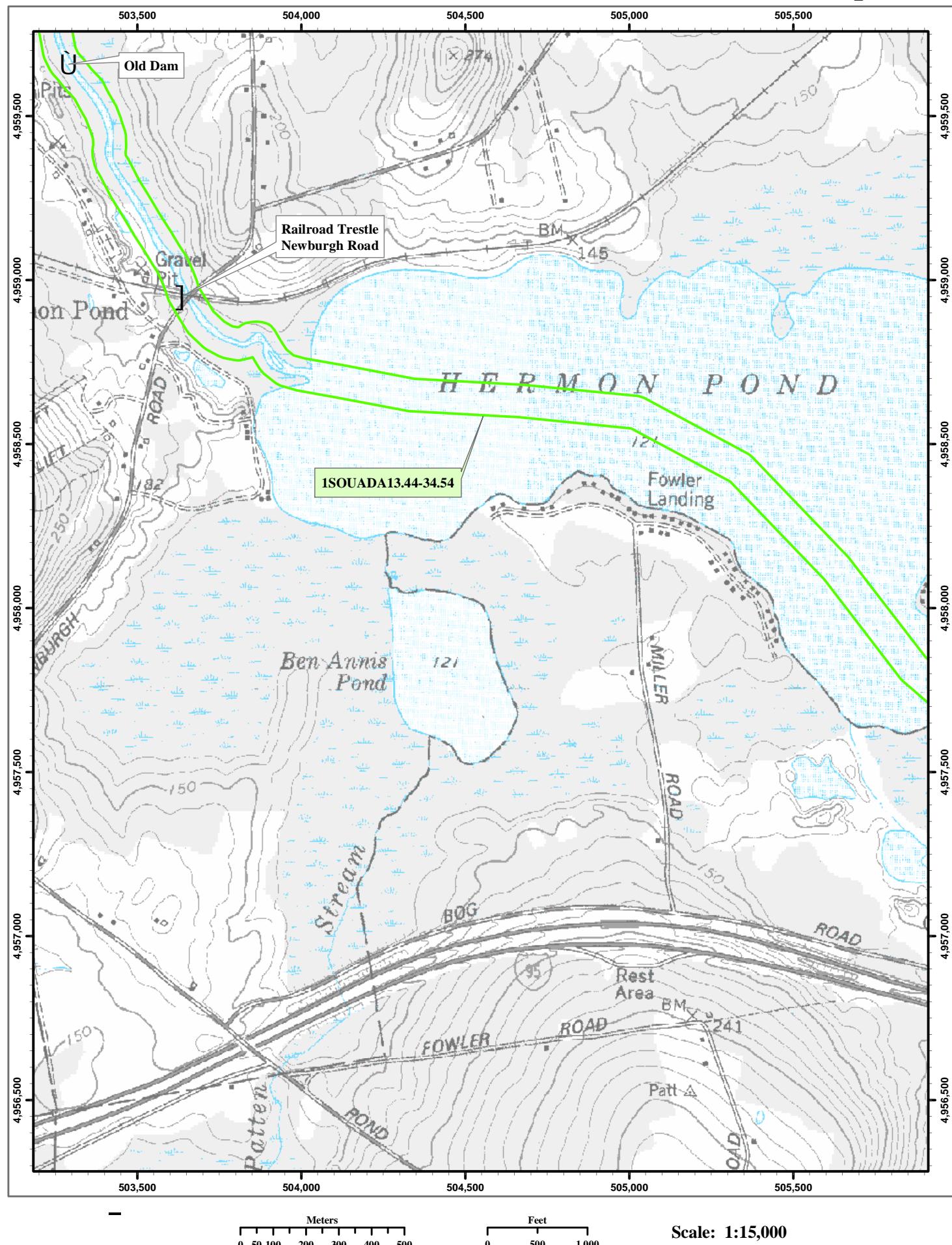
Map 125



Penobscot River

Souadabscook Stream

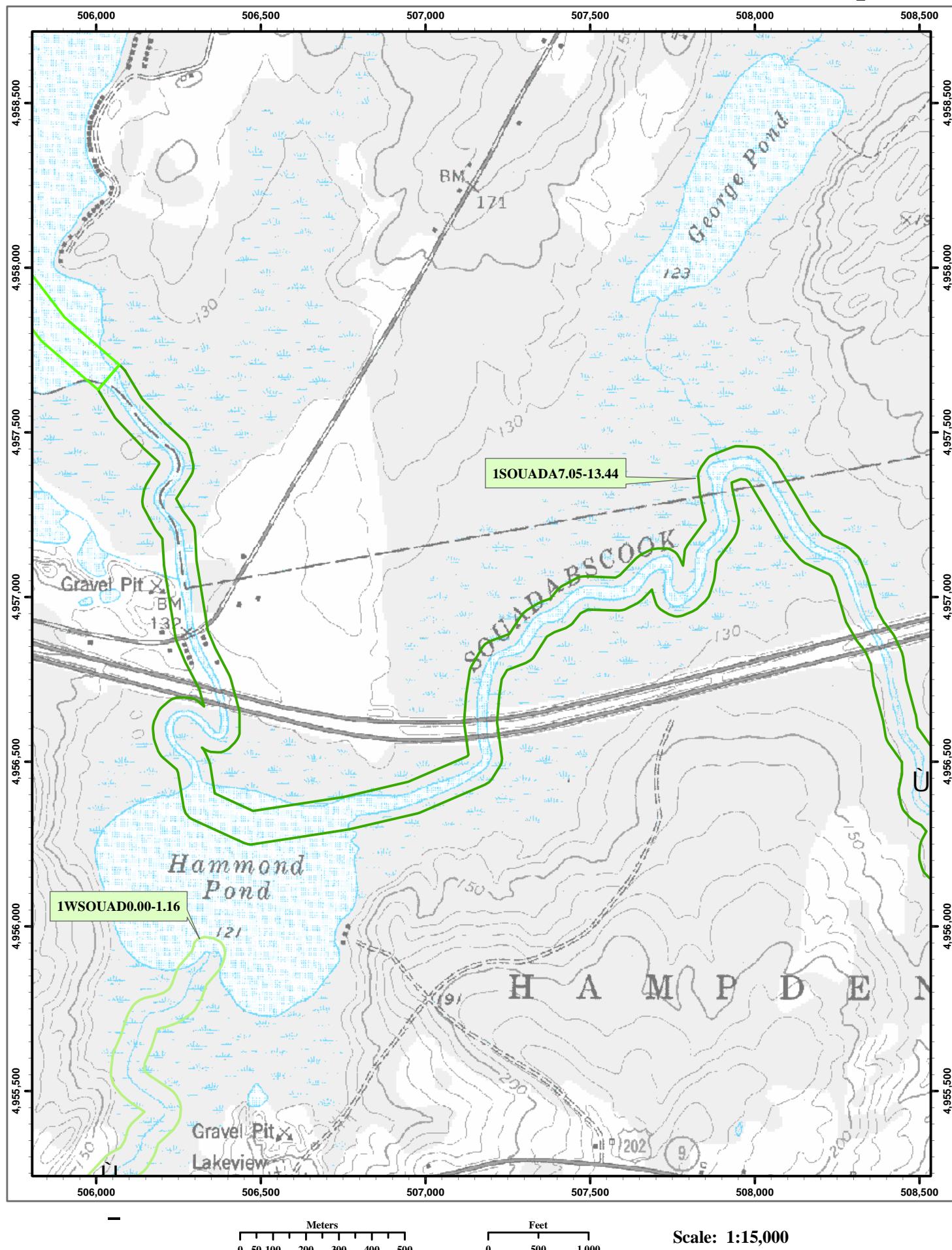
Map 126



Penobscot River

Souadabscook Stream

Map 127

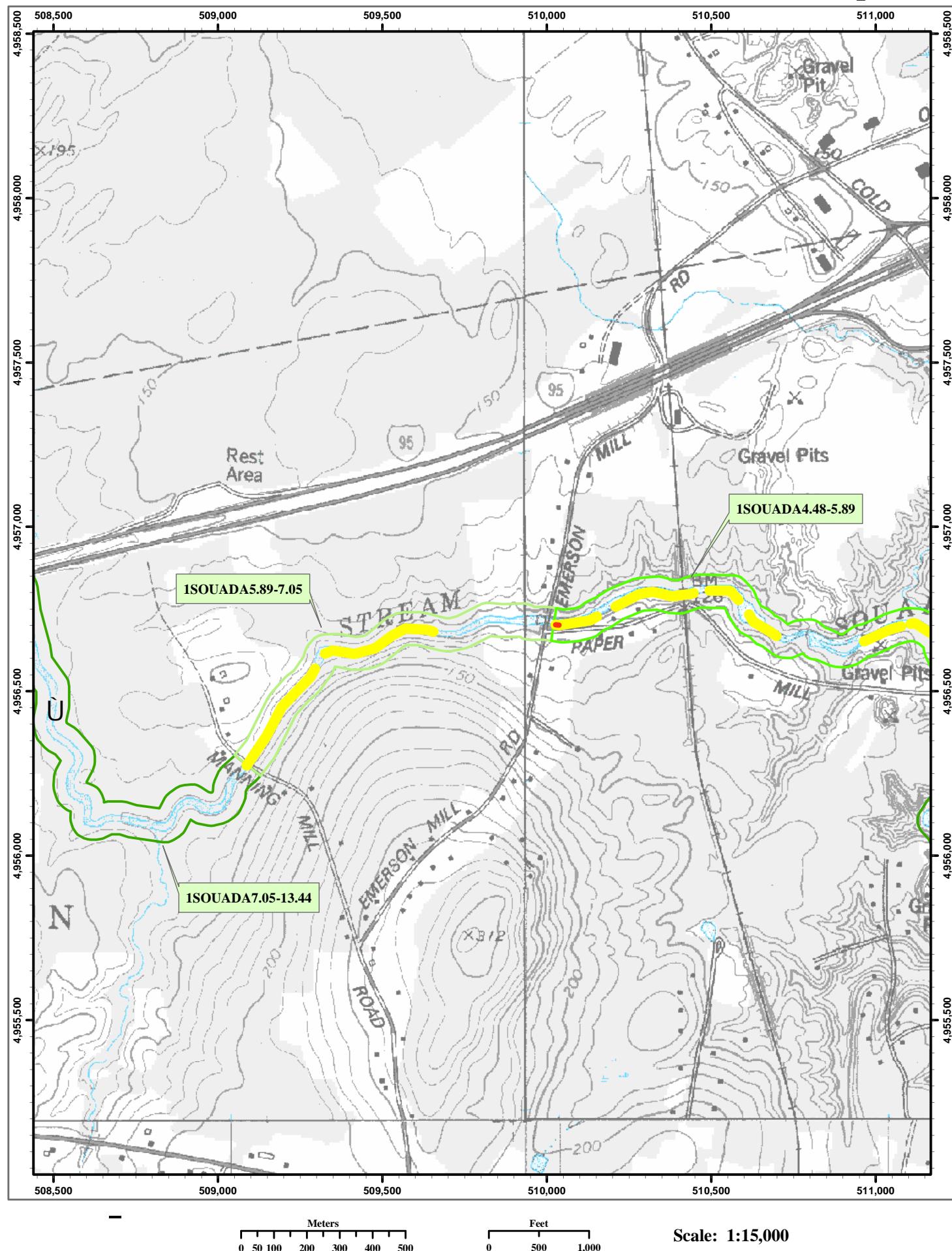


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Penobscot River

Souadabscook Stream

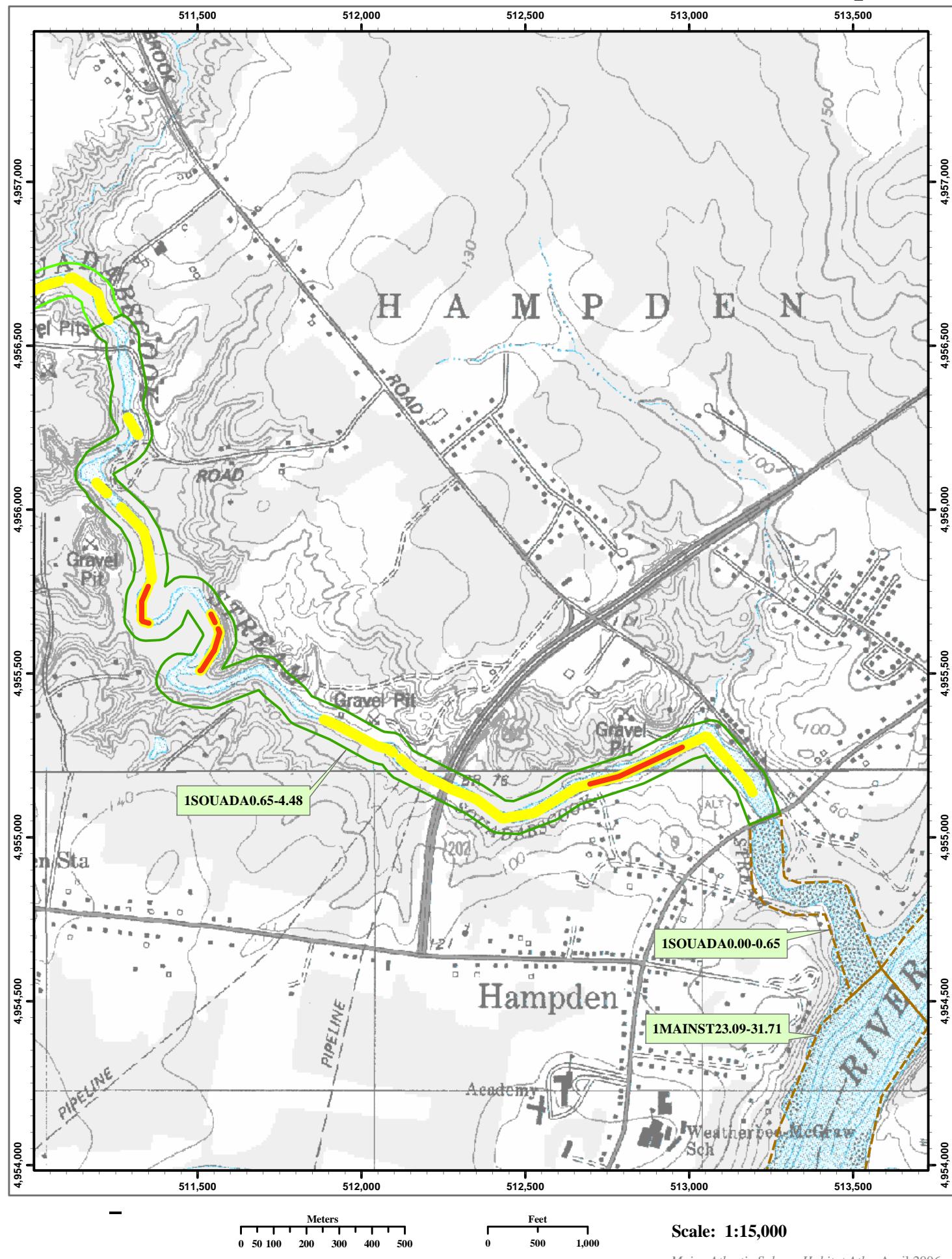
Map 128



Penobscot River

Souadabscook Stream

Map 129



Meters
0 50 100 200 300 400 500

Feet
0 500 1,000

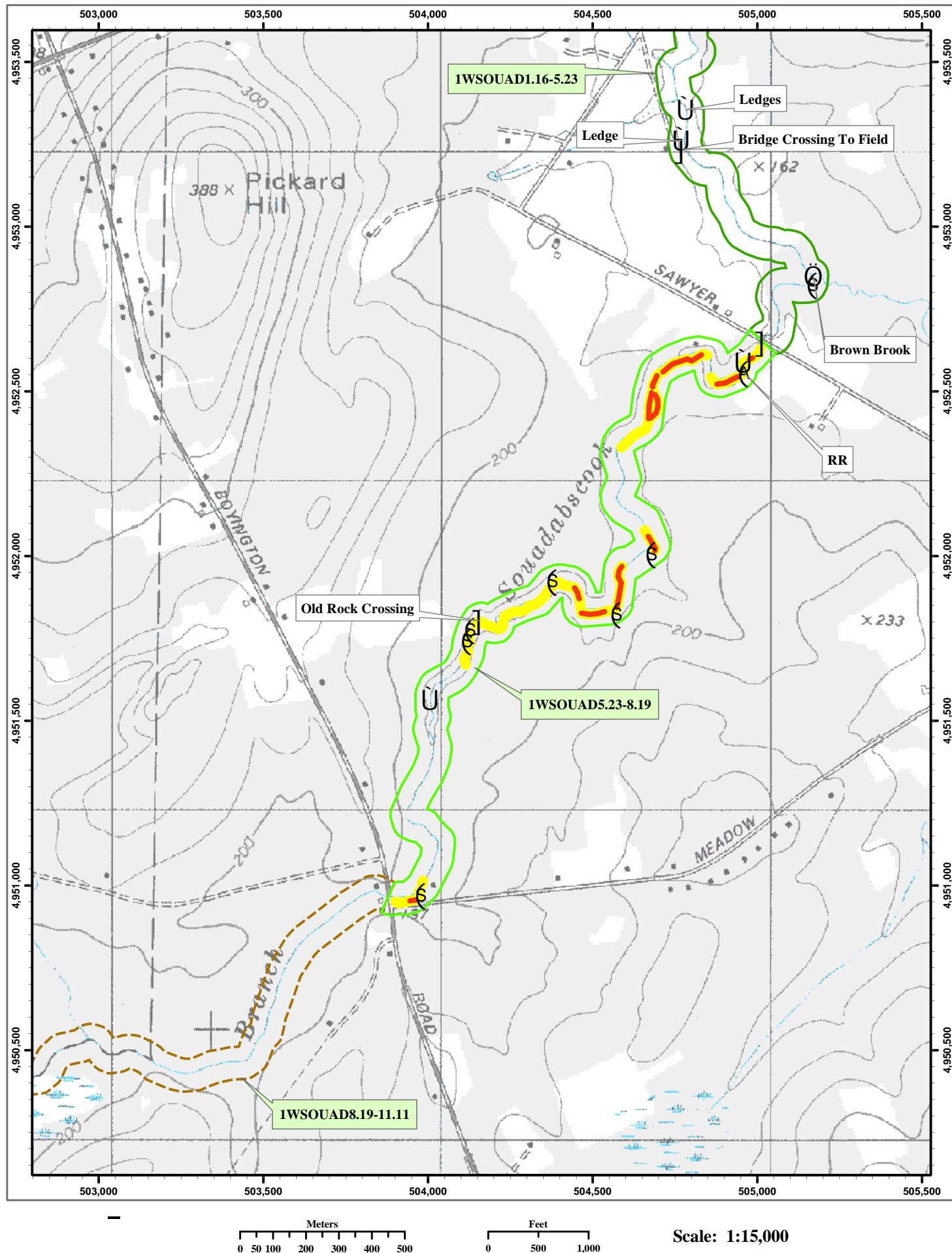
Scale: 1:15,000

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Penobscot River

West Branch Souadabscook Stream

Map 130



Scale: 1:15,000

Maine Atlantic Salmon Habitat Atlas April 2006

Penobscot River

West Branch Souadabscook Stream

Map 131

